Facilities Covered by the Energy Employees Occupational Illness Compensation Program Act of 2000 June 2001

On December 7, 2000, the President issued Executive Order 13179 directing the Department of Energy to list facilities covered by the EEOICPA in the Federal Register. The Act defines three categories of facilities to be included on the list.

- Atomic Weapons Employer Facilities (AWE)
- Department of Energy Facilities (DOE)
- Beryllium Vendor Facilities (BE)

A preliminary list of covered facilities was published in the Federal Register on January 17, 2001. On June 11, 2001, an updated list was published. This list represents the Department's best efforts to date to compile a list of facilities in these three categories.

The updated sites list adds five facilities, removes one facility, consolidates four sets of duplicates and changes one name.

Facilities added to the list are as follows:

- California Research Corp., Richmond, CA
- Bendix Aviation (Pioneer Division) - Davenport, IA
- Watertown Arsenal - Watertown, MA
- Crucible Steel- Syracuse, NY
- Wolff-Alport Chemical Corp. - Brooklyn, NY

The deleted facility is Burris Park Field Station, Kingsburg, CA.

The consolidations are as follows:

- Air Force Plant 36 was consolidated into General Electric Company, Cincinnati/Evendale, OH
- Atomics International into Energy Technology Engineering Center (Atomics International/Rocketdyne), Santa Susana (Canoga Park), CA
- CF Industries into International Minerals and Chemical Corp., Mulberry, FL
- Clifton Products Co. in Clifton, OH, was merged into Clifton, Painesville, OH

The name Enewetok Test Site was changed to Pacific Proving Grounds.

The Department is continuing its research efforts, and continued revisions to the

Facility List should be expected. Available information about many of the listed facilities, particularly for Atomic Weapons Employers or Beryllium Vendors is incomplete or unclear. The Department welcomes comments on this list, including additional information regarding facilities contained in this list or suggestions for additions or deletions to the list. The public is encouraged to contact the Office of Worker Advocacy via email at worker.advocacy@eh.doe.gov, via tollfree phone at 1-877-447-9756, or by mail at:

The Office of Worker Advocacy (EH-8)
U.S. Department of Energy
1000 Independence Avenue, S.W.
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Facility List

There were 318 records found for all records in the list.

1 - AC Spark Plug

State: Michigan **Location:** Flint
Time Period: 1946-1947
Facility Type: Atomic Weapons Employer Beryllium Vendor

Facility Description: AC Spark Plug performed beryllium work for the AEC. Records indicate that approximately 10 men worked with beryllium at this location in 1947. Information about AC Spark Plug is found in health hazard surveys, shipping reports and in a MED history. The company continued to receive hundreds of pounds of beryllium for use under government contract into the 1960's. It is possible that some or all of this beryllium was being used for other, non-AEC projects.

There was also a small amount of thorium procurement related to AC Spark Plug in the 1946-1947 timeframe.

2 - Aeroprojects, Inc.

Also Known As: Sonabond Ultrasonics
State: Pennsylvania **Location:** West Chester
Time Period: 1951-1973
Facility Type: Atomic Weapons Employer Beryllium Vendor

Facility Description: Beginning in 1951, Aeroprojects Inc. performed research and development for the AEC. The company's work included investigation of the use of ultrasonic energy in the areas of instrumentation, welding, filling of tubes with powders, extrusion, solidification and cleaning. Materials used by the company includes alloys and compounds of aluminum, beryllium, mercury, thorium and uranium.

3 - Ajax Magnathermic Corp.

State: Ohio **Location:** Youngstown
Time Period: 1958-1961
Facility Type: Atomic Weapons Employer

Facility Description: The Ajax-Magnethermic Corp. was involved in induction heat treatment of various forms of uranium for National Lead Company of Ohio (Fernald) and also for General Electric (Hanford). The company fabricated an induction heating unit for NLO in 1961.

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4 - Alba Craft

Also Known As: Alba Craft Shop
Also Known As: Alba Craft Laboratories
Also Known As: Albaugh
State: Ohio **Location:** Oxford
Time Period: AWE 1952-1957; DOE 1994-1995 (remediation)
Facility Type: Atomic Weapons Employer Department of Energy

Facility Description: From 1952 to 1957, Alba Craft provided a variety of machine shop services on natural uranium metal for National Lead Company of Ohio (Fernald). Early work at Alba Craft included general and developmental machining of threaded reactor fuel slugs for use at the Savannah River Site. Subsequent production-scale operations consisted of hollow drilling and turning of slugs for the Savannah River and Hanford plutonium-production reactors.

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5 - Albany Research Center

Also Known As: ARC
Also Known As: U.S. Bureau of Mines
Also Known As: Albany Metallurgical Research Center
Also Known As: Oregon Metallurgical Corp.
State: Oregon **Location:** Albany
Time Period: AWE 1948-1978; DOE 1987-1993 (remediation)
Facility Type: Atomic Weapons Employer Department of Energy

Facility Description: From 1948-1978, the Bureau of Mines conducted metallurgical research at the Albany Research Center for the AEC and ERDA. Beginning in 1955, the site

performed research on alloys of uranium and thorium under an AEC contract. Metallurgical operations also included melting, maching and welding. Documentation indicates that the Oregon Metallurgical Corp. possessed production quantities of radioactive materials for work requested by National Lead of Ohio in November 1958.

The Albany Research Center continues as a DOE materials research center under the Office of Fossil Fuels.

6 - Aliquippa Forge

Also Known As: Vulcan Crucible Steel Co.
Also Known As: Universal Cyclops, Inc.
State: Pennsylvania **Location:** Aliquippa
Time Period: AWE late 1940s-1950 ; DOE 1983-1994 (remediation)
Facility Type: Atomic Weapons Employer Department of Energy

Facility Description: In the late 1940s, Aliquippa Forge (previously Vulcan Crucible) was a supplier of rolled uranium rods used in Hanford's reactors. The AEC operated a rolling mill, two furnaces and cutting and extrusion equipment at Vulcan. Work at the site ended in 1950.

7 - Allegheny-Ludlum Steel

State: New York **Location:** Watervliet
Time Period: 1950-1952
Facility Type: Atomic Weapons Employer

Facility Description: Allegheny-Ludlum Steel rolled uranium billets into rods for the AEC as part of the multi-site process overseen by the New York Operations office for the production of uranium metal for fabrication into slugs for fueling the Hanford production reactors.

8 - Allied Chemical and Dye Corp.

Also Known As: General Chemical Div, Allied Chemical and Dye Corp.
Also Known As: Allied Chemical Corp.
Also Known As: Union Texas Petroleum Div.
State: Delaware **Location:** North Claymont
Time Period: early 1950s-late 1960s
Facility Type: Atomic Weapons Employer

Facility Description: Allied Chemical and Dye Company was involved in research and development and small pilot-scale operations on uranium recovery from a phosphoric acid plant. Former AEC employees estimated that, at most, only a few pounds of uranium concentrate were produced.

9 - Allied Chemical Corp. Plant

Also Known As: General Chemical Division
State: Illinois **Location:** Metropolis
Time Period: 1962-1964
Facility Type: Atomic Weapons Employer

Facility Description: After World War II, many companies working for the United States Government produced UF6 feed for uranium enrichment and diffusion plants. In 1962, several feed plants were shut down and the privately-owned Allied Chemical Company Plant in Metropolis, IL, took over the conversion of U3O8 to UF6. This plant produced approximately five thousand tons of uranium hexafloride feed for the Paducah Gaseous Diffusion Plant per year.

10 - Allis-Chalmers Co.

Also Known As: Hawley Plant
State: Wisconsin **Location:** West Allis, Milwaukee
Time Period: early 1940s
Facility Type: Atomic Weapons Employer

Facility Description: Allis-Chalmers made vacuum pumps for the Y-12 plant effort. The company also wound magnetic coils for the "calutrons" used in the Y-12 plant to produce highly enriched uranium.

Allis-Chalmers was also involved in the construction of the K-25 Plant. It provided compressors designed to handle uranium hexafluoride.

11 - Aluminum Co. of America (Alcoa) (New Jersey)

State: New Jersey **Location:** Garwood
Time Period: 1944
Facility Type: Atomic Weapons Employer

Facility Description: Under subcontract to the Metallurgical Laboratory (University of Chicago), the Garwood facility manufactured casting dies and used them to cast uranium

slugs. This work was conducted intermittently between July and October of 1944.

12 - Aluminum Co. of America (Alcoa) (Pennsylvania)

Also Known As: Aluminum Research Laboratories
Also Known As: New Kensington Works (of ALCOA) on Pine and 9th Sts
State: Pennsylvania **Location:** New Kensington
Time Period: 1940s
Facility Type: Atomic Weapons Employer

Facility Description: The Aluminum Company of America (Alcoa) site in New Kensington, Pennsylvania was one of 14 facilities in the early 1940s that produced nuclear fuel for the X-10 pilot plant reactor in Oak Ridge, Tennessee and the production reactors at Hanford, Washington. Alcoa used a unique welding process to "can" and seal uranium slugs produced by these other facilities.

13 - Amchitka Island Nuclear Explosion Site

Also Known As: Amchitka Island Test Center
Also Known As: Amchitka Island Test Site
State: Alaska **Location:** Amchitka Island
Time Period: 1965-1972 ; 1995-present (remediation)
Facility Type: Department of Energy

Facility Description: Amchitka Island was used as a test site for three underground nuclear detonations.

For the Long Shot detonation, drilling began in May 1964. The shot was fired on October 29, 1965, and the operation ended in November 1965.

For the Milrow detonation, drilling began March 9, 1967. The shot was fired on October 2, 1969. No drillback operations took place and the operation ended in November 1969.

For the Cannikin detonation, drilling began August 1967. The shot was fired on November 6, 1971, drillback operations began November 1971, and was completed with the demobilization of drilling equipment on February 23, 1972.

14 - AMCOT

State: Texas **Location:** Forth Worth

Time Period: 1961-1962
Facility Type: Atomic Weapons Employer

Facility Description: The American Manufacturing Company of Texas (AMCOT) conducted specialized tube elongation and billet piercing tests on uranium metal for National Lead Company of Ohio (Fernald). The tube elongation tests were conducted from July to September 1961 and involved approximately 7 tons of uranium. The billet piercing tests were conducted from June to September 1962 and involved approximately 23 tons of uranium. Both NLO and AMCOT employees participated in the tests.

15 - American Bearing Corp.

State: Indiana **Location:** Indianapolis
Time Period: 1954-1959
Facility Type: Atomic Weapons Employer

Facility Description: In 1954, American Bearing Corp. was selected to participate in the machining of a sample lot of four hollow extrusion uranium billets from ingots for National Lead of Ohio (Fernald). Subsequently, National Lead used the Special Products Area of American Bearing to process uranium materials in the late 1950s. In May 1959, National Lead Industries (NLI), Nuclear Division was formed in Albany (Colonie), NY, and this work was moved to this NLI facility.

16 - American Beryllium Co.

State: Florida **Location:** Sarasota
Time Period: 1968; 1980s
Facility Type: Beryllium Vendor

Facility Description: Records, including purchase orders and shipping/receipt records, indicate that American Beryllium manufactured parts for Dow/Rocky Flats in 1968 and for Y-12 in the 1980s. While none of the purchase orders mention beryllium, the name of the vendor suggests that it was involved in beryllium work.

17 - American Chain and Cable Co.

State: Connecticut **Location:** Bridgeport
Time Period: 1944
Facility Type: Atomic Weapons Employer

Facility Description: American Chain and Cable worked

under contract to the Du Pont Company to support the manufacture of uranium slugs during the Manhattan Project. In 1944, the company swaged (reduced the diameter) of uranium rods at its Bridgeport facility.

18 - American Machine and Foundry

Also Known As: AMF
Also Known As: Lutheran Medical Center
Also Known As: Bus Terminal
State: New York **Location:** Brooklyn
Time Period: 1951-1954
Facility Type: Atomic Weapons Employer

Facility Description: During the early 1950s, this location designed and produced industrial equipment for the Atomic Energy Commission. American Machine Foundry also performed a large volume of uranium, thorium and possibly zirconium metal machining work from 1951-1954.

19 - American Machine and Metals, Inc.

Also Known As: Vapofier Corp.
State: Illinois **Location:** E. Moline
Time Period: 1960
Facility Type: Atomic Weapons Employer

Facility Description: In 1960, American Machine and Metals demonstrated a process for National Lead of Ohio (Fernald) that involved dehydration of green salt using a centrifuge process.

20 - American Peddinghaus Corp.

State: New Jersey **Location:** Moonachle
Time Period: 1978
Facility Type: Atomic Weapons Employer

Facility Description: The facility conducted a one-day shear (cutting) test on uranium metal for National Lead of Ohio (Fernald) in 1978.

21 - American Potash & Chemical

Also Known As: National Fireworks Ordnance Corp
Also Known As: National Northern Div.
State: Massachusetts **Location:** West Hanover

Time Period: unknown-1961
Facility Type: Atomic Weapons Employer

Facility Description: American Potash and Chemical Company conducted uranium metal shaping and uranium-magnesium explosive forming studies for Union Carbide Nuclear Corporation, Oak Ridge. The tests done up to May 1961 were performed with 430 stainless steel and uranium metal pieces. Work was also done with green and sintered uranium based powders. The powders were formed in a die into dics approximately 4 1/2 inches in diameter and 1 inch thick.

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22 - Ames Laboratory

Also Known As: Iowa State University
State: Iowa **Location:** Ames
Time Period: 1943-present
Facility Type: Department of Energy

Facility Description: Ames Laboratory is located on the Iowa State University Campus in Ames, Iowa. During the Manhattan Project, researchers at Iowa State perfected a magnesium reduction process, producing pure uranium metal that quickly became the industry standard. Iowa State was one of the first organizations to supply metallic uranium used as fuel for the first self-sustaining chain reaction at the University of Chicago.

In 1947, the AEC formally established the Ames Laboratory and directed it to focus on materials research. Over the years the laboratory broadened its mission to include fundamental research in the physical, chemical, mathematical, engineering, and environmental sciences as well.

CONTRACTOR: Iowa State University (1947-present)

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23 - Anaconda Co.

Also Known As: American Brass Co.
Also Known As: Fabric Metal Goods Plant and West Tube Mill
Also Known As: Anamet, Inc.
State: Connecticut **Location:** Waterbury
Time Period: 1942; 1956-1959
Facility Type: Atomic Weapons Employer

Facility Description: In 1942, the American Brass Company

produced the barriers used in the gaseous diffusion process. In the late 1950s, under contract to Nuclear Metals Inc., the company extruded copper-clad uranium billets into tubes at least two separate times for the Savannah River Site. While the original plans called for work on 500 billets, only around 50 were actually processed. The operations involved plating, heating, extruding, sawing, drilling, deburring, cleaning, testing, crating, and shipping. Work was conducted at the West Tube Mill. AEC Health and Safety Laboratory personnel visited the site in 1956 and 1959, and obtained air quality and surface radiation measurements during the later visit.

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24 - Argonne National Laboratory--East

State: Illinois **Location:** Argonne
Time Period: 1946-present
Facility Type: Department of Energy

Facility Description: Argonne is one of the U.S. Department of Energy's largest research centers. It is also the nation's first national laboratory, chartered in 1946. The Laboratory specializes in reactor engineering, reactor physics, chemistry and metallurgy. Early reactor research focused on the production of plutonium from uranium.

Argonne is a direct descendant of the University of Chicago's Metallurgical Laboratory, part of the World War Two Manhattan Project to build the atomic bomb before the Nazis did. It was at the Met Lab where, on December 2, 1942, Enrico Fermi and his band of about 50 colleagues created the world's first controlled nuclear chain reaction in a squash court at the University of Chicago.

CONTRACTOR: University of Chicago (1946-Present)

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25 - Argonne National Laboratory--West

State: Idaho **Location:** Scoville
Time Period: 1949-present
Facility Type: Department of Energy

Facility Description: Argonne National Laboratories - West (ANLW) is a part of Argonne National Laboratory and is operated by the University of Chicago. ANLW is located on the southeastern portion of the Idaho National Engineering and Environmental Laboratory.

For nearly 40 years, ANLW has led in the development of

advanced nuclear reactor technology. Breakthroughs in the type of fuel used in nuclear-generated power, simplified reprocessing, reduction in the life span of nuclear wastes, and design of increasingly safer power plant systems have all been developed at the ANLW complex.

CONTRACTOR: University of Chicago (1949-present)

26 - Armco-Rustless Iron & Steel

Also Known As: Armco Steel
State: Maryland **Location:** Baltimore
Time Period: 1948
Facility Type: Atomic Weapons Employer

Facility Description: Armco-Rustless Iron and Steel Co. rolled eight billets of uranium for the AEC. It was a one time test of of rolling.

27 - Armour Fertilizer Works

Also Known As: U.S. Agri-Chemicals Pilot Facility
Also Known As: U.S. Steel Corp.
State: Florida **Location:** Bartow
Time Period: 1951-1955
Facility Type: Atomic Weapons Employer

Facility Description: Under contract with the AEC, Armour operated a pilot plant which produced uranium from phosphoric acid.

28 - Armour Research Foundation

Also Known As: ARF
Also Known As: Illinois Institute of Technology
Also Known As: IIT
State: Illinois **Location:** Chicago
Time Period: 1957
Facility Type: Atomic Weapons Employer

Facility Description: Records indicate that Armour Research Foundation may have tested radioactive materials for National Lead Company of Ohio (Fernald), specifically test quantities of materials other than metal (UF4 or ThO2).

29 - Arthur D. Little Co.

Also Known As: Merrill Co.
Also Known As: A.D. Little Co.
State: California **Location:** San Francisco
Time Period: 1948-1956
Facility Type: Atomic Weapons Employer

Facility Description: Under contract to the Atomic Energy Commission from 1948-1956, initially as the Merrill Company, A.D. Little researched the separation and recovery of uranium from various ores. Specific work included the recovery of uranium and vanadium from alkaline carbonate leach solutions from domestic ores.

30 - Ashland Oil

Also Known As: Ashland #1
Also Known As: Ashland #2
Also Known As: Ashland Oil Compnay
Also Known As: Haist Property
Also Known As: E. Haist and co owners
State: New York **Location:** Tonawanda
Time Period: AWE 1944-1960; 1974-1982 ; DOE uncertain-1998 (remediation)
Facility Type: Atomic Weapons Employer Department of Energy

Facility Description: In August 1944, the Manhattan Engineer District purchased the Ashland #1 property, formerly known as the Haist Property, for use as a disposal site for approximately 7,250 metric tons (8,000 tons) of uranium ore tailings and concentrate refining residues generated at the nearby Linde site. When the uranium residues were transported to the Ashland #1 site, they were spread over two-thirds of the property to estimated depths of 0.3 to 1.5 meters (one to five feet). In 1960, the Atomic Energy Commission determined that the levels of residual radioactivity at Ashland #1 site were below then- current criteria and released the land as surplus. The Ashland Oil Company eventually acquired the property . From 1957 to 1982, the Ashland Oil Company used a portion of the Ashland #2 site as a landfill for disposal of general plant refuse and industrial and chemical wastes and materials. Between 1974 and 1982, Ashland Oil transported from the Ashland #1 site an unknown quantity of soil mixed with radioactive residues to the Ashland #2 landfill.

31 - Associated Aircraft Tool and Manufacturing Co.

Also Known As: Force Control Industries
Also Known As: Fairfield
Also Known As: Former Dixie Machinery ownership
State: Ohio **Location:** Fairfield
Time Period: AWE 1956; DOE mid1990s (remediation)
Facility Type: Atomic Weapons Employer Department of Energy

Facility Description: From February to September 1956, Associate Aircraft Tool and Manufacturing Company machined hollow uranium slugs for the Hanford and Savannah River plutonium-production reactors under a subcontract from National Lead Company of Ohio (Fernald). Associate Aircraft machined approximately 96,000 slugs during the eight-month contract period.

32 - B & T Metals

State: Ohio **Location:** Columbus
Time Period: 1943
Facility Type: Atomic Weapons Employer

Facility Description: During the early stages of nuclear weapons production, uranium reactor fuel was produced by a variety of metallurgical techniques including extrusion, casting, and machining.

In February 1943, DuPont, acting as an agent of the Manhattan Engineer District, contracted B&T Metals to extrude rods from uranium metal billets for the Hanford reactor in Washington State. B&T Metals extruded an estimated 50 tons of uranium between March 1943 and August 1943.

33 - Babcock & Wilcox Co. (Virginia)

Also Known As: Tubular Products Div., Lone Star Tech
State: Virginia **Location:** Lynchburg
Time Period: 1959; 1968-1972
Facility Type: Atomic Weapons Employer

Facility Description: Babcock and Wilcox Company's Nuclear Facilities Plant in Lynchburg, VA, performed work for the AEC, though it is questionable whether this work was actually for the weapons program. The work was managed through the New York Operations Office and involved the Oxide Pellet Fabrication Program. Babcock and Wilcox was also involved in the development of the Liquid Metal Fast

Breeder Reactor (LMFBR), however this work was not weapons-related. Records indicate that shipments of enriched uranium were made to and from the Fernald facility during the years 1968-1972.

34 - Baker and Williams Co.

Also Known As: Englehard Industries
Also Known As: Platinum (or Baker) Div. of Englehard Industries
Also Known As: Baker and Co, Inc.
State: New Jersey **Location:** Newark
Time Period: 1957-1962
Facility Type: Atomic Weapons Employer

Facility Description: Baker and Williams processed unirradiated uranium scrap for the AEC to recover enriched uranium for use in the weapons complex.

35 - Baker and Williams Warehouses

Also Known As: Pier 38
Also Known As: Ralph Ferrara Co Warehouse
Also Known As: Ralph Ferrara Inc.
State: New York **Location:** New York
Time Period: AWE 1940s; DOE 1992 (remediation)
Facility Type: Atomic Weapons Employer Department of Energy

Facility Description: During the early 1940s, the Manhattan Engineer District and the AEC used the Baker & Williams site warehouses for short-term storage of uranium concentrates. This material was generated in Port Hope, Canada by milling African ores.

36 - Baker Brothers

Also Known As: Rems, Inc.
State: Ohio **Location:** Toledo
Time Period: AWE 1943-1944; DOE 1990-1996 (remediation)
Facility Type: Atomic Weapons Employer Department of Energy

Facility Description: Between June 1943 and July 1944, DuPont and the University of Chicago subcontracted the Baker Brothers company to machine roll metal rods into uranium slugs that were used for fuel in the world's first

production reactors located in Oak Ridge, TN and Hanford, WA.

37 - Baker-Perkins Co.

Also Known As: APV Chemical Company
State: Michigan **Location:** Saginaw
Time Period: 1956
Facility Type: Atomic Weapons Employer

Facility Description: In May 1956, Baker-Perkins performed a test of their mixing equipment for National Lead Company of Ohio (Fernald). The tests involved mixing uranium trioxide (orange oxide) with water and kneading the mixture with the Baker-Perkins “P” and “K” Ko-Kneader machines

38 - Battelle Laboratories - King Avenue

Also Known As: Battelle Columbus Laboratories (BCL)
Also Known As: Battelle Memorial Institute (BMI)
State: Ohio **Location:** Columbus
Time Period: AWE 1943-1986; BE 1947-1961; DOE 1986-present (remediation)
Facility Type: Atomic Weapons Employer Beryllium Vendor Department of Energy

Facility Description: From 1943 to 1986, Battelle Memorial Institute performed atomic energy research and development as well as beryllium work for the Department of Energy and its predecessor agencies. The Battelle Laboratories have two separate locations in Columbus - King Avenue and West Jefferson. Battelle's research supported the government's fuel and target fabrication program, including fabrication of uranium and fuel elements, reactor development, submarine propulsion, fuel reprocessing, and the safe use of reactor vessels and piping.

The following activities were performed at the King Avenue location: processing and machining enriched, natural, and depleted uranium and thorium; fabricating fuel elements; analyzing radiochemicals; and studying power metallurgy. Beryllium work was conducted from 1947 until at least 1961.

39 - Battelle Laboratories - West Jefferson

Also Known As: Battelle Memorial Institute (BMI)
Also Known As: Battelle Columbus Laboratories (BCL)
Also Known As: West Jefferson Plutonium Facilities

State: Ohio **Location:** Columbus
Time Period: AWE 1956-1975; DOE 1986-present (remediation)
Facility Type: Atomic Weapons Employer Department of Energy

Facility Description: From 1943 to 1986, Battelle Memorial Institute performed atomic energy research and development for the Department of Energy and its predecessor agencies. The Battelle Laboratories have two separate locations in Columbus - King Avenue and West Jefferson. Battelle participated in research on fabrication of uranium and fuel elements, reactor development, submarine propulsion, fuel reprocessing, and the safe use of reactor vessels and piping.

At the West Jefferson location, Battelle operated a large hot cell facility and a research reactor. Reactor operations began in October 1956, and ended in December 1974. The reactor was defueled and partially dismantled in 1975 and Battelle's license was changed to possession-only status.

40 - Bell Telephone Laboratories

Also Known As: Western Electric
State: New Jersey **Location:** Murray Hill
Time Period: 1943-1944
Facility Type: Atomic Weapons Employer

Facility Description: This facility handled a quantity of uranium during World War II, probably in support of its work to develop effective barrier materials for the K-25 facility in Oak Ridge. The barrier materials were not radioactive.

41 - Bendix Aviation (Pioneer Division)

State: Iowa **Location:** Davenport
Time Period: 1960
Facility Type: Atomic Weapons Employer

Facility Description: On three separate occasions, National Lead of Ohio (Fernald) personnel conducted tests to see how well a Bendix sonic energy cleaning system could clean uranium contaminated 55 gallon drums. At least 18 contaminated drums were test cleaned.

42 - Beryllium Corp. of America (Hazleton)

Also Known As: Berylco
Also Known As: Kawecki-Berylco
Also Known As: NGK Metals Corporation
State: Pennsylvania **Location:** Hazleton
Time Period: 1943-1962 (probably into the 1970s)
Facility Type: Beryllium Vendor

Facility Description: The Manhattan Engineer District and the Atomic Energy Commission (AEC) contracted with the facility for the production of beryllium metal, beryllium oxide, and beryllium powder. The AEC contracted with the facility for the refining and fabrication of beryllium. Later the facility produced beryllium blanks for the Y-12 plant.

43 - Beryllium Corp. of America (Reading)

State: Pennsylvania **Location:** Reading
Time Period: 1947-1961
Facility Type: Beryllium Vendor

Facility Description: In 1947, the Beryllium Corporation plant at Reading produced highly distilled and pure beryllium oxide on a small scale for the AEC. By 1960, the plant focused on alloy and oxide work. In 1961, the plant supplied beryllium parts to the Y-12 plant and produced beryllium powder from government inventory beryllium ingot for the AEC.

44 - Beryllium Metals and Chemical Corp.

Also Known As: BERMET
State: North Carolina **Location:** Bessemer City
Time Period: 1960s
Facility Type: Beryllium Vendor

Facility Description: The Beryllium Metals and Chemical Corp. (BERMET) participated in the AEC's beryllium metal study group in the 1960's. BERMET was responsive to an invitation to submit 100 pounds of beryllium metal to the AEC for purposes of qualifying for further work. According to a 1969 memo, BERMET chose not to participate beyond this initial 100 pound qualifying round. Notes from classified files at Y-12 indicate BERMET did some beryllium work for Y-12.

45 - Beryllium Production Plant (Brush Luckey Plant)

Also Known As: Brush Beryllium
Also Known As: Luckey Site
State: Ohio **Location:** Luckey
Time Period: BE 1949-1959; DOE 1949-1961; 1992-present (remediation)
Facility Type: Beryllium Vendor Department of Energy

Facility Description: From 1942 through 1945, National Lead operated a magnesium processing facility on the Luckey site for the U.S. government. In 1949, the Atomic Energy Commission (AEC) built a beryllium production facility at the site. The government built the plant to replace the production that was lost when the Brush Beryllium Loraine plant was destroyed by fire. The Brush Beryllium Company (now Brush Wellman) under contract to the AEC, produced beryllium pebbles at this site until 1958. Records indicate that the facility produced between 40,000 and 144,000 pounds of beryllium. In 1959, the AEC contracted with Brush to close down the facility. The site was sold to the Vulcan Materials Company in 1961.

In 1951, AEC sent approximately 1,000 tons of radioactively contaminated scrap metal to the Luckey site. This material was to be used by the Diamond Magnesium Company to resume magnesium processing at the idle facility. Former Brush Wellman employees report that the magnesium facility never resumed operations; however, some records indicate that the facility operated in the 1950s under contract by the General Services Administration (GSA). The radioactively contaminated scrap metal remained stored at the site.

CONTRACTOR: Brush Beryllium (1949-1961)

46 - Besley-Wells

Also Known As: Besley Products Co.
State: Wisconsin **Location:** South Beloit
Time Period: 1953
Facility Type: Atomic Weapons Employer

Facility Description: Besley was a cutting tool manufacturer. A National Lead Company of Ohio (Fernald) proposal indicates Besley was to machine a trial lot of 500 uranium slugs at its Beloit, WI, plant to evaluate whether the use of the Besley facing and radiusing machine could increase production. An NLO document lists Besley-Wells as the recipient of test quantities of radioactive materials.

47 - Bethlehem Steel

State: New York **Location:** Lackawana
Time Period: 1949-1951
Facility Type: Atomic Weapons Employer

Facility Description: In 1949, Bethlehem Steel of Lackawanna, New York developed improved rolling mill pass schedules for uranium billets into 1.5-inch rods to be used for reactor fuel rods to later be used at the Fernald plant. Bethlehem also performed uranium rolling experiments to help design the Fernald rolling mill.

48 - Birdsboro Steel & Foundry

State: Pennsylvania **Location:** Birdsboro
Time Period: 1951-1952; 1962
Facility Type: Atomic Weapons Employer

Facility Description: In the early 1950s, Birdsboro was involved in the design and construction of the Feed Materials Production Center in Fernald, OH, specifically in the rolling mill plant. The documentation is unclear as to whether any uranium was actually handled at the Birdsboro Steel facility, but does indicate that 11.5 pounds of “wafers” were shipped to the facility and that eight assorted pieces of billets weighing 346 pounds were shipped from Birdsboro to the Lake Ontario Ordnance Warehouse. A 1962 document indicates that Birdsboro also supplied rotary piercing equipment for the fabrication of uranium tubes at the FMPC and that a acceptance test took place at Birdsboro, but it is unclear as to whether any uranium was actually handled at the site.

49 - Bliss & Laughlin Steel

Also Known As: B & L Steel
Also Known As: Niagara Cold Drawn
State: New York **Location:** Buffalo
Time Period: AWE 1948-1952; DOE uncertain-1998 (remediation)
Facility Type: Atomic Weapons Employer Department of Energy

Facility Description: Under contract to the National Lead Company of Ohio (Fernald), Bliss and Laughlin Steel rolled uranium rods for the AEC and also provided uranium slug machining services. Bliss and Laughlin was part of a

complex called the Buffalo Works that fashioned components for the early weapons program. The functions were transferred to the Albuquerque South Valley Site in 1952

50 - Blockson Chemical Co.

Also Known As: Blockson Chemical Group
Also Known As: Olin Mathieson
Also Known As: Olin
State: Illinois **Location:** Joliet
Time Period: 1952-1962
Facility Type: Atomic Weapons Employer

Facility Description: Blockson Chemical Company operated a plant which produced uranium from phosphoric acid. The AEC contracted with Blockson for the recovery of the uranium, which was ultimately used in weapons production.

51 - Bloomfield Tool Co.

State: New Jersey **Location:** Bloomfield
Time Period: 1947; 1951
Facility Type: Atomic Weapons Employer

Facility Description: The facility had a small research contract with the Atomic Energy Commission in 1947. In 1951, it did some experimental machining of uranium slugs for the AEC. The results were not satisfactory and the work was not expanded.

52 - BONUS Reactor Plant

State: Puerto Rico **Location:** Punta Higuera
Time Period: 1964-1968
Facility Type: Department of Energy

Facility Description: The Boiling Nuclear Superheat Reactor (BONUS) was licensed from April 2, 1964 to June 1, 1968. Full power operation began in late 1965 and stopped in July 1967. The plant was Atomic Energy Commission/Department of Energy owned; it was not regulated by the Nuclear Regulatory Commission. Plutonium has been recovered from reactor fuel.

53 - Bowen Laboratory

State: New Jersey **Location:** North Branch
Time Period: 1951
Facility Type: Atomic Weapons Employer

Facility Description: The Bowen Laboratory conducted some experimental work on uranium compounds during a two-day period in 1951. The tests were to develop a process calcining pitchblende raffinates (transforming liquid or sludge-like wastes into a more solid form).

54 - Bridgeport Brass Co.

Also Known As: Bridgeport Brass Co.
Also Known As: Uranium Metal Extrusion Plant
Also Known As: General Motors, Chevrolet Mfg. Div.
Also Known As: National Distillers and Chemical Corp.
Also Known As: Martin
Also Known As: A.C. Spark Plug
State: Michigan **Location:** Adrian
Time Period: AWE 1954-1961; DOE 1988-1995 (remediation)
Facility Type: Atomic Weapons Employer Department of Energy

Facility Description: From 1954-1961, the Bridgeport Brass Company performed contract work for the AEC. Operations included production of uranium fuel elements for the Hanford and Savannah River Plant reactors and developmental extrusion work on thorium and depleted natural and slightly enriched uranium.

After termination of AEC activities in 1961, most of this plant's functions were transferred to Reactive Metals, Inc. (RMI) in Astabula, Ohio. Bridgeport shipped one large extrusion press to RMI and all other equipment was dismantled and scrapped. This location is now owned by General Motors and cleanup was completed at this site in 1995.

55 - Bridgeport Brass Co., Havens Laboratory

Also Known As: Reactive Metals, Inc.
Also Known As: Piedmont Mfg.
State: Connecticut **Location:** Bridgeport
Time Period: 1954-1962
Facility Type: Atomic Weapons Employer

Facility Description: Bridgeport Brass, at the Havens Laboratory in Connecticut and in Adrian, Michigan, worked to improve the process for extruding uranium. Eventually this work was taken over by Reactive Metals, which operated the AEC/DOE extrusion facility in Astabula, Ohio. Bridgeport cut and stored uranium, and may have been involved in the rolling of uranium. Some work of the Havens Laboratory was moved to Seymour, CT, in 1962, to a facility that is now owned by Seymour Specialty Wire.

56 - Brookhaven National Laboratory

State: New York **Location:** Upton
Time Period: 1947-present
Facility Type: Department of Energy

Facility Description: Brookhaven National Laboratory (BNL) is the former site of a U.S. Army installation (Camp Upton) and has been involved in research and development activities in support of the Department of Energy (DOE) and its predecessor agencies since 1947. BNL's facilities conduct basic and applied research in high energy and nuclear physics and in other areas of science.

CONTRACTORS: Brookhaven Science Association (Battelle Memorial Institute and State University of New York at Stony Brook)(1998-Present); Associated Universities, Incorporated (1947-1998)

57 - Brush Beryllium Co. (Detroit)

State: Michigan **Location:** Detroit
Time Period: 1940s-1950s
Facility Type: Atomic Weapons Employer

Facility Description: The Brush Beryllium Company in Detroit, MI, was one of several companies that rolled or extruded uranium rods for Hanford reactor fuel in the late 1940s and early 1950s. In 1950, Hanford began making rolled uranium rods onsite, but the Atomic Energy Commission shifted the rolling work to the Fernald, OH, Feed Materials Production Center and its supporting contractors in 1952. A number of private companies, including Brush Beryllium Company, contracted with Fernald to provide Hanford with these rolled rods.

58 - Brush Beryllium Co. (Cleveland)

Also Known As: Brush Wellman Co.
Also Known As: Motor Wheel Corp.
Also Known As: Magnesium Reduction
State: Ohio **Location:** Cleveland
Time Period: AWE 1942-1943;1949-1953 BE 1943-1967
Facility Type: Atomic Weapons Employer Beryllium Vendor

Facility Description: The Brush Cleveland facility conducted research on a process for producing uranium metal (1942-1943) through magnesium reduction of molten green salt (uranium tetrafloride). The facility later conducted research and development with uranium (1949-1953) and extruded thorium billets into slugs which were placed in Hanford production reactors (1952-1953).

The Brush Cleveland facility also produced beryllium metal and beryllium oxide for the MED (1943-1946) and later for the AEC (1947-1965?).

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59 - Brush Beryllium Co. (Elmore)

State: Ohio **Location:** Elmore
Time Period: 1957-1990
Facility Type: Beryllium Vendor

Facility Description: Brush Beryllium plant in Elmore, OH, was built in 1953. It began producing beryllium for the AEC in 1957 after operations at the Brush Luckey, OH, facility ended. (Prior to 1957 it produced beryllium for the commercial market only.) The plant was still in operation in 1999, but probably last supplied beryllium to DOE (the Y-12 plant) in 1990. The Elmore plant produced beryllium metal, oxide, and powder.

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60 - Brush Beryllium Co. (Lorain)

State: Ohio **Location:** Lorain
Time Period: 1943-1948
Facility Type: Beryllium Vendor

Facility Description: The Loraine plant produced beryllium metal and beryllium oxide for the MED and the AEC. The plant was destroyed by fire in 1948.

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61 - Burns & Roe, Inc.

State: New York **Location:** Maspeth
Time Period: 1949
Facility Type: Beryllium Vendor

Facility Description: Documentation indicates that Burns & Roe did at least one test run with beryl in the ore chlorination process and during this run, the New York Operations Office Health and Safety Laboratory closely monitored air samples.

62 - C.G. Sargent & Sons

State: Massachusetts **Location:** Graniteville
Time Period: 1968
Facility Type: Atomic Weapons Employer

Facility Description: C.G. Sargents and Sons Company performed extruder and drying oven tests with thorium for National Lead of Ohio (Fernald). It also conducted a uranium sump cake drying test for NLO. These were apparently one-time tests.

63 - C.H. Schnoor

Also Known As: Conviber
Also Known As: Premier Manufacturing
State: Pennsylvania **Location:** Springdale
Time Period: AWE 1943-1951; DOE 1992-1995 (remediation)
Facility Type: Atomic Weapons Employer Department of Energy

Facility Description: In 1943, C.H. Schnoor & Company began providing metal fabrication services in support of Manhattan Engineer District (MED) operations. C.H. Schnoor machined extruded uranium for the Hanford Pile Project. Operations may have continued until 1951 when the building was sold.

64 - C.I. Hayes, Inc.

State: Rhode Island **Location:** Cranston
Time Period: 1964
Facility Type: Atomic Weapons Employer

Facility Description: In 1964, C.I. Hayes Inc. handled uranium metal under subcontract to the National Lead Company. The work involved heat-treating uranium in a

vacuum furnace in order to test the decontamination and health and safety aspects of this work.

65 - California Research Corp.

State: California **Location:** Richmond
Time Period: 1948-1949
Facility Type: Atomic Weapons Employer

Facility Description: Using small amounts of plutonium and uranium, the California Research Corporation performed experiments to investigate the use of continuous chelation as a means of separating plutonium and zirconium from uranium. The California Research Corporation performed the work as a subcontractor to the Kellex Corporation which was under contract to the AEC to investigate waste recovery methods.

66 - Callite Tungsten Co.

State: New Jersey **Location:** Union City
Time Period: 1944
Facility Type: Atomic Weapons Employer

Facility Description: According to a 1944 document, the Callite Tungsten Co. used its machines to cold roll uranium metal rods for the Manhattan Engineering District.

67 - Carboloy Co.

Also Known As: General Electric Metallurgical Products Department
State: Michigan **Location:** Detroit
Time Period: 1956
Facility Type: Atomic Weapons Employer

Facility Description: In 1956, the Carboloy Company conducted operations to turn down the outer diameter of uranium slugs.

68 - Carnegie Institute of Technology

Also Known As:
State: Pennsylvania **Location:** Pittsburgh
Time Period: Early 1940s
Facility Type: Atomic Weapons Employer

Facility Description: During the Manhattan Project (1944), Carnegie Institute of Technology was key participant in research on the phases of special metals and their alloys. It also worked on the development of methods for testing materials of construction and the construction of “necessary equipment.”

69 - Carpenter Steel Co.

State: Pennsylvania **Location:** Reading
Time Period: 1943-1944
Facility Type: Atomic Weapons Employer

Facility Description: Beginning in 1943, Carpenter Steel Corporation was one of the 14 private contractors and vendors that produced fuel for the Oak Ridge X-10 pilot plant reactor and the full-scale Hanford production reactors. As an alternative to extrusion, the Carpenter Steel Company of Reading, Pennsylvania experimented with rolled uranium rods in July 1944, but these proved to be inferior to the extruded product. The metal tended to form laps and seams on the surfaces of the rolled bars. Carpenter Steel has since changed its name to Carpenter Technology Corporation.

70 - C-B Tool Products Co.

State: Illinois **Location:** Chicago
Time Period: 1944
Facility Type: Atomic Weapons Employer

Facility Description: For a six month period in 1944, C-B Tool Products Company had a subcontract with the University of Chicago to provide personnel, facilities, and equipment to produce special machining of parts for special equipment, tools, jigs, and fixtures to the Met Lab from materials provided by the University of Chicago. It is unclear whether the company handled radioactive materials.

71 - Ceradyne, Inc.

State: California **Location:** Santa Ana
Time Period: 1977-1988
Facility Type: Beryllium Vendor

Facility Description: Ceradyne provided beryllium parts, and possibly powder, to the Y-12 plant.

72 - Chambersburg Engineering Co.

State: Pennsylvania **Location:** Chambersburg
Time Period: 1957
Facility Type: Atomic Weapons Employer

Facility Description: In March 1957, a series of hot uranum forging tests were conducted at the Chambersburg Engineering company by the Metallurgical Department of National Lead Company of Ohio (Fernald). Approximately 150 hot uranium slugs were forged into washers on two Chambersburg air compressor impactors.

73 - Chapman Valve

Also Known As: Chapman Valve Manufacturing Co.
Also Known As: Crane Co.
State: Massachusetts **Location:** Indian Orchard
Time Period: AWE 1948-1949; DOE 1991-1995 (remediation)
Facility Type: Atomic Weapons Employer

Facility Description: Chapman Valve supplied valves to the MED and the AEC. In 1948, Chapman Valve machined uranium rods into slugs for the Brookhaven National Laboratory. Uranium slugs were used as reactor fuel. Chapman may also have conducted rolling operations on uranium metal in 1949.

74 - Chemical Construction Co.

Also Known As: Chemico
State: New Jersey **Location:** Linden
Time Period: 1953-1955
Facility Type: Atomic Weapons Employer

Facility Description: The Chemical Construction Company conducted research and development activities to recover uranium and other metals from low-grade waste materials. The wastes were generated by uranium processing operations at the Mallinckrodt facility in St. Louis, Missouri.

75 - Chupadera Mesa

State: New Mexico **Location:** Chupadera Mesa
Time Period: 1945
Facility Type: Department of Energy

Facility Description: Chupadera Mesa is located in the

White Sands Missle Range and was part of the fallout area from the Trinity test. The Trinity Test took place in July 1945.

76 - Cincinnati Milling Machine Co.

Also Known As: Cincinnati Milcron, Inc.
State: Ohio **Location:** Cincinnati
Time Period: 1963
Facility Type: Atomic Weapons Employer

Facility Description: The Cincinnati Milling Machine Co. built electro-chemical machining units. In September 1963, the company tested the feasibility of electro-chemical machining of uranium. Eight normal uranium solid cylinders 1 inch in diameter and 1 inch long (approximately 14 pounds) were used in the test.

77 - Clarksville Facility

Also Known As: Ft. Campbell
Also Known As: Mason & Hanger - Clarksville Base
State: Tennessee **Location:** Clarksville
Time Period: 1958-1965
Facility Type: Department of Energy

Facility Description: The Clarksville Modification Center was established in 1958 for the purpose of testing and modifying the components of nuclear weapons. The Center was located near Clarksville, TN, on a corner of the Ft. Campbell, KY, military reservation. It was closed in September 1965 and its functions were transferred to Pantex and Burlington.

CONTRACTOR: Mason & Hanger-Silas Mason (1958-1965)

78 - Clifton Products Co.

State: Ohio **Location:** Painesville
Time Period: 1940-1952
Facility Type: Beryllium Vendor

Facility Description: In the 1940's, Clifton had at least six large contracts with the AEC to supply beryllium products. By 1949, at least 8 beryllium-related deaths had occurred at Clifton.

79 - Colonie Site (National Lead)

Also Known As: Colonie Interim Storage Site (CISS)
Also Known As: National Lead Co., Albany, NY
Also Known As: National Lead Co. - Nuclear Division
Also Known As: NL Industries - Nuclear Division
State: New York **Location:** Colonie (Albany)
Time Period: AWE 1958-1984; DOE 1984-1998
Facility Type: Atomic Weapons Employer Department of Energy

Facility Description: From 1937 to 1984, National Lead Industries owned and operated the Colonie site. The site was first used as a foundry. During the years from 1958 to 1984, National Lead manufactured thorium and depleted uranium components at this site under license from the Atomic Energy Commission.

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80 - Columbia University

Also Known As: Pupin Hall
Also Known As: Havemeyer Hall
Also Known As: Nash Building
Also Known As: Prentiss Hall
Also Known As: Schermerlimon Hall
State: New York **Location:** New York City
Time Period: AWE 1939-1940s; DOE 1985 (remediation)
Facility Type: Atomic Weapons Employer Department of Energy

Facility Description: Columbia University began its nuclear research in 1939 by studying nuclear chain reactions. In 1940, the university was contracted by the National Research Defense Committee for additional research in areas including isotope separation, gas centrifuge for uranium separation work, and the nuclear chain reaction. Four of the university's building including, Pupin, Schermerhorn, Havemeyer, and Nash, were known to have housed the research experiments.

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81 - Combustion Engineering

Also Known As: Asea Brown Boveri
Also Known As: S1C prototype
State: Connecticut **Location:** Windsor
Time Period: AWE 1955-1972; DOE 1993-1998 (remediation)
Facility Type: Atomic Weapons Employer Department of

Energy

Facility Description: Combustion Engineering (CE) supported the Atomic Energy Commission beginning in the 1940s. Initial work at the site involved non-nuclear components. In 1955, CE began to use highly enriched uranium. In the 1960s, CE obtained a license to fabricate fuel elements for power reactors. CE received uranium from Feranld through 1972.

82 - Connecticut Aircraft Nuclear Engine Laboratory (CANEL)

Also Known As: Pratt and Whitney Corp.
Also Known As: Connecticut Advanced Nuclear Engineering Lab
Also Known As: United Aircraft Corp.
State: Connecticut **Location:** Middletown
Time Period: 1958-1965
Facility Type: Beryllium Vendor Department of Energy

Facility Description: The Connecticut Aircraft Nuclear Engine Laboratory (CANEL) worked on an AEC program to develop a nuclear reactor with which to propel aircraft. Specifically, CANEL worked on developing high temperature materials, fuel elements, and liquid metal metal components and coolants. CANEL consisted of a hot laboratory facility, a nuclear physics laboratory, a fuel element laboratory, a nuclear materials research and development laboratory, and other buildings. The AEC Annual report for 1959 indicates that approximately $4 million in AEC equipment was at CANEL. Plutonium, mixed fission products, and probably uranium were handled at CANEL. A former ORNL employee who had worked at CANEL stated that beryllium metal and oxide in a powdered form were also handled at CANEL. Although President Kennedy canceled the aircraft nuclear propulsion progarm in 1961, AEC work appraently continued at CANEL until 1965.

CONTRACTOR: Pratt and Whitney Aircraft Division of the United Aircraft Corporation (1958-1965)

83 - Coors Porcelain

Also Known As: Coors Ceramic
State: Colorado **Location:** Golden
Time Period: 1940s-1980s
Facility Type: Beryllium Vendor

Facility Description: Coors Porcelain was involved in beryllium work for the AEC from 1958 to at least 1975, possibly into the 1980s, and was the subject of a study entitled "Beryllium Disease Screening in the Ceramics Industry; Blood Lymphocyte Test Performance and Exposure-Disease Relations," by Kreiss, Kathleen; Wasserman, Stephanie; Mroz, Margaret and Newman, Lee (March 1993). Other documentation indicates that Coors may have been involved in beryllium work as early as 1948.

Coors had other contracts with the AEC, including providing chemical and laboratory porcelainware, manufacturing insulators with attached metal parts, and manufacturing porcelain tubes for Y-12, but it does not appear that this work involved radioactive materials. It may also have been involved in aircraft nuclear propulsion work.

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84 - Copperweld Steel

State: Ohio **Location:** Warren
Time Period: 1943
Facility Type: Atomic Weapons Employer

Facility Description: The Copperweld Steel Company of Warren, Ohio, straightened and outgassed a large number of uranium rods for the Hanford and Oak Ridge reactors between May and August of 1943.

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85 - Crane Co.

State: Illinois **Location:** Chicago
Time Period: 1947-1949
Facility Type: Atomic Weapons Employer

Facility Description: Crane Co. supplied the Atomic Energy Commission with uranium and thorium in the 1940s (and perhaps in the 1950s) and likely used materials containing uranium in manufacturing valves for the AEC. At the completion of one project in 1949, 1000 pounds of contaminated wastes, including 346 grams of uranium, were shipped from Crane to Oak Ridge. In 1949, Crane also shipped 265 kg of normal uranium to Hanford. In 1954, records indicate government interest in purchasing more uranium and thorium from Crane, but this work has not been verified.

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86 - Crucible Steel Co.

State: New York **Location:** Syracuse
Time Period: 1951
Facility Type: Atomic Weapons Employer

Facility Description: In 1951, New York Operations Office personnel performed a test forging and rolling of 10 thorium billets at Crucible Steel Company.

87 - Dana Heavy Water Plant

State: Indiana **Location:** Dana
Time Period: 1952-1957
Facility Type: Atomic Weapons Employer

Facility Description: Most of the heavy water for the U.S. nuclear weapons programs was made at two sites: the Dana Heavy Water Plant and the Savannah River Heavy Water Plant. The Dana Heavy Water Plant was designed and built by the Girdler Corporation (under direction from E.I. du Pont de Nemours and Company) and operated by E.I. du Pont de Nemours and Company. The plant, located in Newport, Indiana, operated from April 1952 until May 1957, and remained on standby until July 1959. The site used a combination of hydrogen sulfide-water chemical exchange, water distillation, and electrolysis processes to make heavy water.

CONTRACTOR: E. I du Pont de Nemours (1952-1957)

88 - Dorr Corp.

Also Known As: Dorr-Oliver Corp.
State: Connecticut **Location:** Stamford
Time Period: 1954 ; 1963
Facility Type: Atomic Weapons Employer

Facility Description: The Dorr Corp. conducted waste handling tests on low-level radioactive material (ammonium diuranate). This work was done as a subcontractor to National Lead of Ohio (Fernald). National Lead personnel monitored the tests and took air quality samples.

89 - Dow Chemical Co.

Also Known As: Pittsburg, CA
State: California **Location:** Walnut Creek
Time Period: 1947-1957

Facility Type: Atomic Weapons Employer

Facility Description: The Dow operation involved process studies and experimental investigations on different uranium ores and thorium-bearing ores, including pilot-scale solvent extraction of uranium from phosphoric acid.

90 - Du Pont Deepwater Works

Also Known As: E.I. Du Pont de Nemours and Co.
Also Known As: Dyeworks-Carney's Point
Also Known As: Deepwater Dyeworks
State: New Jersey **Location:** Deepwater
Time Period: AWE 1942-1949; DOE uncertain-1998 (remediation)
Facility Type: Atomic Weapons Employer Department of Energy

Facility Description: In the 1940s, E.I. DuPont de Nemours & Company (DuPont) produced uranium products and conducted research on uranium hexafluoride. These activities were conducted first for the U.S. Office of Scientific Research and Development (OSRD), and later under contract to the Manhattan Engineer District (MED) and the Atomic Energy Commission (AEC). DuPont also developed processes to convert uranium dioxide to uranium hexafluoride, and produced uranium oxide and uranium metal which was used to fuel the CP-1 reactor at the Univerisity of Chicago. After completion of these activities, the AEC conducted limited decontamination and released the site to DuPont for reuse. DuPont currently operates a chemical plant at this site.

91 - Du Pont-Grasselli Research Laboratory

Also Known As: Standard Oil of Ohio
State: Ohio **Location:** Cleveland
Time Period: 1943-1945
Facility Type: Atomic Weapons Employer

Facility Description: The Grasselli Laboratory participated in the development the slug canning and coating processes for the Hanford site.

92 - Edgerton Germeshausen & Grier, Inc.

State: Massachusetts **Location:** Boston
Time Period: 1950-1953

Facility Type: Atomic Weapons Employer

Facility Description: EG&G was under contract to the AEC during the period from 1950-1953 for "research and development and manufacturing incident to the installation of scientific test instrumentaion at AEC test sites; design, manufacture, test, maintenance of operations systems, weapons systems; and participation in weapons test evaluation." It is unclear from the documentation whether any radioactive materials were handled at the Boston location.

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93 - Electro Circuits, Inc.

State: California **Location:** Pasadena
Time Period: 1952-1953
Facility Type: Atomic Weapons Employer

Facility Description: Electro Circuits used uranium metal (approximately 300 lb.) to conduct tests aimed at determining the usefulness of ultrasonics in the detection of pipe in ingots.

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94 - Electro Metallurgical

Also Known As: Electromet Corp.
Also Known As: Umetco Minerals Corp.
Also Known As: Union Carbide Corp.
Also Known As: Electro-Metallurgical Corp.
State: New York **Location:** Niagara Falls
Time Period: 1942-1953
Facility Type: Atomic Weapons Employer

Facility Description: In 1942, the Electro Metallurgical Company (ElectroMet), a subsidiary of Union Carbide and Carbon Corporation, was contracted by the Manhattan Engineer District to design, engineer, construct, and operate a metal reduction plant. This plant was to take uranium tetrafluoride and convert it to uranium metal.

Developing the technology to produce pure uranium metal was a priority for the Manhattan Project. ElectroMet accomplished this conversion by taking the uranium tetrafluoride received from Union Carbide's Linde Air Products Division and reacting it with magnesium in induction furnaces. Once the metal was created, it was cast into ingots and the ingots were then shipped out for testing or for rolling. The leftover process residues were sent to other sites for uranium recovery, storage, or disposal.

Electromet was also in charge of recasting metal, research and development in low and high-grade uranium ores, and supplying calcium metal to Los Alamos and other laboratories.

After the war ended, Electromet produced UF4 that was reduced to metallic uranium either onsite in Niagara Falls or by Mallinckrodt at the St. Louis Downtown Site.

In 1946, production was suspended, and from 1950 through 1953, the plant began casting zirconium metal sponge into ingots. The plant was also used for titanium processing and uranium and thorium processing.

95 - Elk River Reactor

Also Known As: Elk River Facility
Also Known As: United Power Association
State: Minnesota **Location:** Elk River
Time Period: 1962-1968
Facility Type: Department of Energy

Facility Description: The Elk River Reactor was constructed by the AEC as part of its power reactor demonstration program. The Rural Cooperative Power Association received a contract for the dismantling of the reactor and the removal of all detectable reactor radioactivity when operations ceased.

96 - Energy Technology Engineering Center (Atomics International/Rocketdyne)

Also Known As: Atomics International
Also Known As: Rocketdyne
Also Known As: Nuclear Development Field Laboratory
Also Known As: Canoga Park
State: California **Location:** Santa Susana (Canoga Park)
Time Period: DOE 1955-1995; 1970s-present (remediation)

Facility Type: Beryllium Vendor Department of Energy

Facility Description: The Santa Susana Field Station (SSFL) is jointly owned by Boeing and the National Aeronautics and Space Administration (NASA) and is operated by the Rocketdyne Propulsion and Power Division of Boeing.

In the mid-1950s, the AEC entered into a contract with

Atomics International (a division of North American Aviation, later Rockedyne) to test pumps for sodium cooled reactors. In the mid1960s, part of Area IV at the Santa Susana Field Laboratory, called the Energy Technology Engineering Center, was established as an Atomic Energy Commission laboratory for the development of liquid metal heat transfer systems to support the Office of Nuclear Energy's Liquid Metal Fast Breeder Reactor program. Operations at Building 20, the Rockwell International Hot Laboratory, were conducted to support the Office of Defense Programs, while other facilities at ETEC supported other DOE research programs, including the Systems for Nuclear Auxiliary Power program. Operations in all nuclear reactors and some other facilities in Area IV ended by the mid-1970s. Office of Nuclear Energy activities at the site were terminated at the end of 1995.

Documentation from 1960 indicates that Atomics International performed work involving the refining or fabriation of beryllium or beryllium oxide for the AEC. Known beryllium exposures did occur at this location.

CONTRACTORS: Rocketdyne Division, Rockwell International Corporation (1966-present); Atomics International (division of North American Aviation) (1955-1966).

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97 - ERA Tool and Engineering Co.

Also Known As: Audio-Tex, Inc.
State: Illinois **Location:** Chicago
Time Period: 1944
Facility Type: Atomic Weapons Employer

Facility Description: From February 1944 through June 1944, ERA Tool and Engineering Company contracted with the University of Chicago to supply services and supplies to the Met Lab, specifically to provide necessary personnel, facilities, and equipment required to produce special machining of parts for special equipment, tools, jigs, fixtures, etc. from materials furnished by the University. It is unclear from the records whether ERA handled radioactive materials as part of its work.

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98 - Extruded Metals Co.

State: Michigan **Location:** Grand Rapids
Time Period: 1944
Facility Type: Atomic Weapons Employer

Facility Description: A November 7, 1944, document indicates that Extruded Metals participated in work related to metal fabrication for the Manhattan Project.

99 - Extrusion Plant (Reactive Metals Inc.)

Also Known As: Reactive Metals, Inc.
Also Known As: RMI
State: Ohio **Location:** Ashtabula
Time Period: 1962-1988; uncertain-present (remediation)
Facility Type: Department of Energy

Facility Description: From 1962 to 1988, Ashtabula (formerly known as Reactive Metals, Inc.) received uranium billets from Fernald's Feed Materials Production Center and the Weldon Springs Plant and extruded them into feed stock for fabrication of fuel and target elements to be used in nuclear materials production reactors.

Ashtabula was the corporate successor of the Bridgeport Brass Company of Adrian, Michigan, which performed similar extrusion work from 1954 to 1961. The semi-production extrusion press used at Adrian was transported and installed at Ashtabula.

In addition to its work for the Department of Energy (DOE) and its predecessor agencies, Ashtabula performed work for the Department of Defense and a number of commercial entities under a Nuclear Regulatory Commission (NRC) license.

100 - Fansteel Metallurgical Corp.

State: Illinois **Location:** North Chicago
Time Period: 1944
Facility Type: Beryllium Vendor

Facility Description: An October 10, 1944, memo states that the "majority of the oxide was sent to Fansteel Metallurgical Corp for fabrication into sintered shapes...and permits sale to Brush [Beryllium]of unused as well as scrap BeO." No additional information on Fansteel has been located to date.

101 - Feed Materials Production Center (FMPC)

Also Known As: Fernald

Also Known As: Fernald Environmental Management Project (FEMP)
Also Known As: FERMCO
State: Ohio **Location:** Fernald
Time Period: 1951-present
Facility Type: Department of Energy

Facility Description: The Feed Materials Production Center (FMPC) at the Fernald site was established by AEC in 1951 to convert depleted uranium, natural uranium, and low-enriched uranium compounds into uranium metal and to fabricate uranium metal into feed stock for fuel and target elements for reactors that produced weapons-grade plutonium and tritium. The Fernald Plant, operated by National Lead of Ohio (NLO), along with the Weldon Spring Plant in Missouri, were feed materials plants built by the AEC in the 1950s to supply fuel to the increasing number of nuclear reactors located at Hanford and Savannah River. Production operations at the Fernald site continued until July 10, 1989, when they were suspended by the Department of Energy (DOE). DOE formally shut down the facility on June 19, 1991. During its production mission, the Fernald site produced over 225 million kilograms (500 million pounds) of high-purity uranium products to support United States defense initiatives.

CONTRACTORS: Fluor Fernald (1992-present); Westinghouse (1985-1992); National Lead of Ohio (1951-1985)

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102 - Fenn Machinery Co.

Also Known As: Fenn Manufacturing Co.
State: Connecticut **Location:** Hartford
Time Period: 1950
Facility Type: Atomic Weapons Employer

Facility Description: Fenn conducted swaging tests on uranium rods to determine if the process could be used to produce properly shaped rods for Hanford's production reactors. Two tests, each lasting less than one day, were conducted in June 1950.

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103 - Fenwal, Inc.

State: Massachusetts **Location:** Ashland
Time Period: 1967-1968
Facility Type: Atomic Weapons Employer

Facility Description: In 1967 and 1968, National Lead of Ohio (Fernald) asked Fenwal to conduct tests aimed at determining the capabilities of Fenwal's fire extingushing equipment for suppressing fires originating in uranium contaminated magnesium. The tests were conducted at Fenwal facilities and involved small amounts of uranium. Some Fenwal employees later traveled to Fernald to service fire suppression equipment.

104 - Fermi National Accelerator Laboratory

State: Illinois **Location:** Batavia
Time Period: 1972-present
Facility Type: Department of Energy

Facility Description: Fermi National Accelerator Laboratory was established in 1972 as a research and development facility. Fermi has one of the most powerful particle accelerators in the world and is used to conduct a variety of high-energy physics programs.

CONTRACTORS: Universities Research Association (1972-present)

105 - Foote Mineral Co.

Also Known As: Exton Cyrus Foote Mineral Co.
Also Known As: Formil
Also Known As: Shieldalloy Metallurgical
Also Known As: Cyprus Foote Mineral Company
State: Pennsylvania **Location:** East Whiteland Twp.
Time Period: AWE 1940s-1991; BE 1947-uncertain
Facility Type: Atomic Weapons Employer Beryllium Vendor

Facility Description: This Foote Mineral facility produced monazite sands on a pilot plant scale, produced zirconium metal, separated hafnium from zirconium, produced lithium chemicals, processed lithium metal and other ores, developed inorganic fluxes for the metal industry, and crushed and sized minerals. When the facility was closed in 1991, the site included more than 50 buildings and process areas.

The facility may have rolled some uranium metal during the mid 1940s.

Foote Mineral Company was also a major importer of beryl ore from Brazil. Under contract to the Atomic Energy

Commission, Foote Mineral Company procured 500 tons of beryl ore in 1947.

106 - Frankford Arsenal

State: Pennsylvania **Location:** Philadelphia
Time Period: 1952-1954
Facility Type: Atomic Weapons Employer

Facility Description: The Frankford Arsenal performed experimental research on uranium tetrachloride. It also served as a storage site for approximately 500 pounds of normal uranium metal rods.

107 - Franklin Institute

State: Massachusetts **Location:** Boston
Time Period: unknown
Facility Type: Beryllium Vendor

Facility Description: The Franklin Institute conducted a study for the Division of Reactor Development in 1962. No information has been located on this facility to date.

108 - Gardinier, Inc.

Also Known As: U.S. Phosphoric Plant Uranium Recovery Unit
Also Known As: Cargill Fertilizer, Inc.
Also Known As: U.S. Phosporic Products Division of The Tennessee Corp.
State: Florida **Location:** Tampa
Time Period: 1951-1954; 1956-1961
Facility Type: Atomic Weapons Employer

Facility Description: Under contract to the AEC, Gardinier (under the name U.S. Phosphoric Products) operated a pilot plant from 1951 to 1954 which recovered uranium from phosphoric acid. From 1956 to 1961, it produced uranium by recovery of U3O8 from phosphoric acid. Maximum production was 60 tons of uranium concentrate per year. The uranium was ultimately used in weapons production.

109 - General Astrometals

State: New York **Location:** Yonkers
Time Period: 1963-1965

Facility Type: Beryllium Vendor

Facility Description: General Astrometals supplied beryllium metal and parts to the Y-12 plant and to Lawrence Livermore National Laboratory. It also purchased beryllium chips and contaminated powder from Oak Ridge.

110 - General Atomics

Also Known As: GA
Also Known As: Division of General Dynamics
Also Known As: John Jay Hopkins Laboratory for Pure and Applied Science
State: California **Location:** La Jolla
Time Period: AWE 1960-1969; BE uncertain DOE 1996-1999 (remediation)
Facility Type: Atomic Weapons Employer Beryllium Vendor Department of Energy

Facility Description: General Atomics was one of a number of private contractors that processed unirradiated scrap for the Atomic Energy Commission in the 1960s. In addition, the Hot Cell Facility was used for numerous post-irradiation examinations of Department fuels, structural materials, reactor dosimetry materials, and instrumentation. The Department-sponsored activities at the General Atomics Hot Cell Facility primarily supported the High Temperature Gas Cooled Reactor and the Reduced- Enrichment Research Test Reactor programs. In December 1994, General Atomics notified the Nuclear Regulatory Commission and the State of California Department of Health Services of its intent to cease operations in the Hot Cell Facility.

General Atomics was also the operating contractor for the AEC's Experimental Beryllium Oxide Reactor (EBOR). General Atomics manufactured EBOR fuel elements (UO2-BeO) on site and examined them in the site's hot cell.

111 - General Electric Company (Ohio)

Also Known As: GE Evendale
Also Known As: GE Cincinnati
Also Known As: GE Lockland
Also Known As: Air Force Plant 36
State: Ohio **Location:** Cincinnati/Evendale
Time Period: 1961-1970
Facility Type: Atomic Weapons Employer Beryllium Vendor Department of Energy

Facility Description: The Evendale Plant's major mission is to build aircraft engines. The AEC used this facility to work with a variety of radioactive materials, including uranium and thorium. This facilty was also involved in the refining or fabrication of beryllium or beryllium oxide.

112 - General Electric Plant (Indiana)

State: Indiana **Location:** Shelbyville
Time Period: 1956
Facility Type: Atomic Weapons Employer

Facility Description: In 1956, this facility handled thorium metal under subcontract to National Lead of Ohio (Fernald). The work, which involved 500 pounds of thorium, was a test of compacting and shaping techniques using General Electric's equipment.

113 - General Electric Vallecitos

State: California **Location:** Pleasanton
Time Period: AWE 1958-1978;1981-1982 DOE 1998-present (remediation)
Facility Type: Atomic Weapons Employer Department of Energy

Facility Description: In 1958, General Electric constructed four hot cells for post-irradiation examination of uranium fuel and irradiated reactor components. The U.S. Government's involvement (through the Atomic Energy Commission and later, the Department of Energy) was limited to a single hot cell, Hot Cell No. 4. Between 1965 and 1967, Hot Cell No. 4 was decontaminated, equipped with a stainless steel liner to contain plutonium, and dedicated to the study of mixed oxide fuel rods in support of the Atomic Energy Commission's fast breeder reactor development programs. In 1978, Hot Cell No. 4 was placed on standby; it was used by Lawrence Livermore National Laboratory for six months in 1981 and 1982.

114 - Gerity-Michigan Corp.

Also Known As: successor to Canton Drop Forging and Manufacturing
State: Michigan **Location:** Adrian
Time Period: 1949-1950s
Facility Type: Beryllium Vendor

Facility Description: Gerity-Michigan operated a 2200/550 ton tube and rod extrusion press and performed the first extrusion of beryllium there on May 11, 1949 for the AEC. Documentation, specifically accountability reports, indicates that work continued there through the 1950s.

Gerity-Michigan was also under contract to the AEC to put extrusion presses into operating condition at the Adrian, Michigan facility.

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115 - Granite City Steel

Also Known As: Old Betatron Building
Also Known As: General Steel Castings
State: Illinois **Location:** Granite City
Time Period: AWE 1958-1966; DOE 1993-1994 (remediation)
Facility Type: Atomic Weapons Employer Department of Energy

Facility Description: From 1958 through 1966, Granite City Steel (under the name General Steel Castings) performed quality control work for the AEC. Specifically, it xrayed uranium ingots to detect metallurgical flaws for the Mallinckrodt Weldon Spring site.

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116 - Great Lakes Carbon Corp.

Also Known As: Regis Chemical and Algee Company
State: Illinois **Location:** Chicago
Time Period: 1952-1958
Facility Type: Atomic Weapons Employer

Facility Description: In 1952, the Great Lakes Carbon Corp. studied graphite for the Atomic Energy Commission and in 1958 it did some Transient Reactor Test Facility (TREAT) fuel work for Argonne National Laboratory (ANL). As part of the contract, ANL agreed to decontaminate the facility used. It handled radioactive uranium and radioactive thorium under AEC contract.

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117 - Gruen Watch

Also Known As: Gruen Watch Co.
Also Known As: Gruen Watch Co., Time Hall
State: Ohio **Location:** Norwood
Time Period: 1956
Facility Type: Atomic Weapons Employer

Facility Description: The Gruen Watch Co. conducted cold shaving and stamping and hot stamping washer tests for National Lead Company of Ohio (Fernald) in May and June 1956. The tests involved shaving and stamping uranium washers on a 60-ton mechanical press and stamping washers from strips of uranium heated in a salt bath. Only small quantities of radioactive materials were handled.

118 - GSA 39th Street Warehouse

Also Known As: Resco Air Conditioning and Heating Co.
State: Illinois **Location:** Chicago
Time Period: 1940s
Facility Type: Atomic Weapons Employer

Facility Description: The 39th Street Warehouse was occupied by the Metallurgical Laboratory and Argonne National Laboratory until approximately 1949. Activities in the building included the storage of radioactive materials.

119 - Hallam Sodium Graphite Reactor

Also Known As: Hallam Nuclear Power Facility
Also Known As: HNFP
Also Known As: Nebraska Hallam Nuclear Power Facility
State: Nebraska **Location:** Hallam
Time Period: 1960-1971
Facility Type: Department of Energy

Facility Description: The Atomic Energy Commission (AEC) built and operated the Hallam Nuclear Power Facility in the 1960s. When the AEC retired this facility in 1971, the reactor core and most other radioactive materials were removed from the site; some radioactive materials were entombed in place. The Hallam facility, now owned by the Nebraska Public Power District, has no current mission.

120 - Hanford

Also Known As: Hanford Engineer Works (HEW), Richland
State: Washington **Location:** Richland
Time Period: 1942-present
Facility Type: Department of Energy

Facility Description: Hanford was established in 1942, as a major government-owned nuclear weapons production site, fabricating reactor fuel, operating nine nuclear material

production reactors and building five major chemical separation plants, and producing plutonium for nuclear weapons. Later operations also included nonmilitary applications of nuclear energy.

CONTRACTORS:

Entire Site: Fluor Daniel (1994-present); Westinghouse Hanford (1987-1994); General Electric Company (1946-1965); E.I. Du Pont de Nemours & Company (1943-1946)

Reactor Operations: UNC Nuclear Industries (1973-1987); United Nuclear Industries (1967-1973); Douglas United Nuclear (1965-1967)

Chemical Reprocessing: Rockwell Hanford Company (1977-1987); Atlantic-Richfield Hanford Company (1967-1977); Isochem, Incorporated (1965-1967)

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121 - Harshaw Chemical Co.

Also Known As: HarshawFiltrol Partners
Also Known As: Uranium Refinery
State: Ohio **Location:** Cleveland
Time Period: 1942-1953
Facility Type: Atomic Weapons Employer

Facility Description: Harshaw Chemical of Cleveland, Ohio refined black oxide and sodium diuranate to orange oxide and then to brown oxide for the Manhattan Project during World War II. The final result was a "green salt", which the Manhattan Project used to produce uranium hexafluoride for enrichment into weapons grade fuel for nuclear weapons at the gaseous diffusion plants. Harshaw also produced uranium hexafloride during the war and this production activity was expanded in 1947. Harshaw production was reduced in 1951 and by May of 1953 the green salt plant was dismantled and the hexafluoride plant was placed on standby.

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122 - Heald Machine Co.

State: Massachusetts **Location:** Worcester
Time Period: 1960
Facility Type: Atomic Weapons Employer

Facility Description: National Lead of Ohio (Fernald) conducted tests on a drilling machine at the Heald facility. The tests involved drilling a few uranium slugs on the

machine which Fernald intended to purchase.

123 - Heppenstall Co.

Also Known As: Tippins Inc.
State: Pennsylvania **Location:** Pittsburgh
Time Period: 1955
Facility Type: Atomic Weapons Employer

Facility Description: Under contract to the Mallinckrodt Chemical Co., the site was used to heat, press and water quench uranium "dingots". Approximately 100,000 pounds of normal uranium metal was shaped at Heppenstall over about a 6-month period. Records indicate that the forging was done on a 1000 ton press on a schedule of two days per month by a Heppenstall crew of eight men.

124 - Herring-Hall Marvin Safe Co.

Also Known As: Herring Hall and Marvin Safe Co.
Also Known As: Diebold Safe Co.
Also Known As: HHM Safe
State: Ohio **Location:** Hamilton
Time Period: 1943-1951
Facility Type: Atomic Weapons Employer

Facility Description: Intermittently from the 1943 to 1951, the Herring-Hall-Marvin Safe Company machined natural uranium metal slugs from rolled stock under subcontract to DuPont and the University of Chicago.

125 - Hooker Electrochemical

Also Known As: Hooker Chemical Co.
Also Known As: Occidental Chemical Corp.
Also Known As: Occidental Chemical Corp., Speciality Chemical Div.
Also Known As: Hooker Chemical and Plastics Corp.
State: New York **Location:** Niagara Falls
Time Period: Early 1940s
Facility Type: Atomic Weapons Employer

Facility Description: In January 1943, Hooker began work for the Manhattan Engineer District to manufacture fluoridated and chloridated organic chemicals. The by-product of this work was hydrochloric acid that was subsequently used in the chemical processing of a uranium-bearing slag as a precursor of uranium recovery. This work

was continued until shortly after World War II.

126 - Horizons, Inc.

Also Known As: Celcon Metals Co.
Also Known As: Lamotite, Inc.
State: Ohio **Location:** Cleveland
Time Period: 1940s-1956
Facility Type: Atomic Weapons Employer

Facility Description: During the 1940s and 1950s, the metal handling facility was used for the production of granular thorium metal for the AEC and conducted some thorium research work for Savannah River. From July 1949 to November 1949, Horizons Inc. was also under AEC contract to conduct research and perform development work on a process for the preparation of ductile, high-purity zirconium by fused salt electrolysis.

127 - Hunter Douglas Aluminum Corp.

Also Known As: Hunter Douglas Aluminum Plant
Also Known As: Bridgeport Brass
State: California **Location:** Riverside
Time Period: 1959-1963
Facility Type: Atomic Weapons Employer

Facility Description: In 1959, Hunter Douglas Aluminum extruded approximately 1600 pounds of solid uranium stock for National Lead Company of Ohio (Fernald). In a subsequent subcontract, the company fabricated uranium-zirconium billets for the GE Evendale Plant.

128 - Huntington Pilot Plant

State: West Virginia **Location:** Huntington
Time Period: 1951-1963; 1978-1979
Facility Type: Department of Energy

Facility Description: The AEC built the Huntington Pilot Plant in 1951 to supply nickel powder for use in the Paducah and Portsmouth gaseous diffusion plants. One source of the nickel was scrap nickel which was contaminated with uranium. The plant was shutdown in 1963 and maintained in standby condition. It was demolished in 1978-1979.

CONTRACTOR: International Nickel Company (1951-1963)

129 - Idaho National Engineering Laboratory

Also Known As: National Reactor Testing Station
State: Idaho **Location:** Scoville
Time Period: 1949-present
Facility Type: Department of Energy

Facility Description: In 1949, the Atomic Energy Commission established the National Reactor Testing Station on the site of a 1940s United States Navy bombing and artillery range. Today, this site is known as the Idaho National Engineering and Environmental Laboratory (INEEL). This was the primary nuclear reactor development laboratory in the United States. Over 100 reactor concepts were conceived and tested here. Between 1953 and 1992, the Idaho Chemical Processing Plant (ICCP) at INEEL reprocessed spent nuclear fuel from naval propulsion, test, and research reactors to recover enriched uranium for reuse in nuclear weapons production. Other facilities at INEEL also conducted various nuclear weapons research and development activities.

The primary INEEL research areas include the Test Area North, Test Reactor Area, ICCP, Power Burst Facility, Auxiliary Reactor Area, Experimental Breeder Reactor - I, Central Facilities Area, and the Radioactive Waste Management Complex.

CONTRACTORS:

Prime Operating Site Contractors: Bechtel BWXT Idaho, LLC. (1999-present); Lockheed Martin Idaho Technologies Company (1994-1999); EG&G Idaho (1976-1994); Aerojet Nuclear Corporation (1972-1976); Idaho Nuclear Corporation (1966-1972); Phillips Petroleum Company (1950-1966)

Argonne Laboratory West: University of Chicago (1949-present)

Idaho Chemical Processing Plant: Bechtel BWXT Idaho, LLC. (1999-present); Lockheed Martin Idaho Technologies Company (1994-1999); Westinghouse Idaho Nuclear Company (1984-1994); Exxon Nuclear Idaho Company (1979-1984); Allied Chemical Corporation (1971-1979); Idaho Nuclear Corporation (1966-1971); Phillips Petroleum Company (1953-1966); American Cyanamid Company (1950-1953)

Specific Manufacturing Capability: Bechtel BWXT Idaho,

LLC. (1999-present); Lockheed Martin Idaho Technologies Company (1994-1999); Babcock & Wilcox Idaho, Inc. (1991-1994); Rockwell INEL (1986-1991); Exxon Nuclear Idaho Company (1983-1986)

Naval Reactors Facility: Bechtel Bettis, Inc. (1999-present); Westinghouse Electric Corporation (1950-1999)

130 - International Minerals and Chemical Corp.

Also Known As: Pilot Facility
Also Known As: Uranium Recovery Unit at the Bonnie Plant
Also Known As: Phosphate Chemicals Div., Bonnie Uranium Plant
Also Known As: C.F. Industries, Inc.
State: Florida **Location:** Mulberry
Time Period: 1951-1961
Facility Type: Atomic Weapons Employer

Facility Description: International Minerals and Chemical Corp. produced uranium as a byproduct of the recovery of phosphate chemicals and fertilizers. The 1951, AEC contracted with International Minerals and Chemical Corp. for the recovery of uranium, which was ultimately used for the production of weapons. The orginal production plant was shut down in 1959. Starting in 1954, the uranium recovery unit was located at the Bonnie Plant. In 1955, it switched to the phosphoric acid process. International Minerals and Chemical Corp. became Central Farmers (now C.F.) Industries; in 1969, C.F. Industries became C.F. Chemicals, Bartow Phosphate Works. The phosphoric process was shut down in 1961.

131 - International Nickel Co., Bayonne Laboratories

State: New Jersey **Location:** Bayonne
Time Period: 1951-1952
Facility Type: Atomic Weapons Employer

Facility Description: International Nickel plated uranium slugs with nickel for use in the nuclear weapons production system during the early 1950s.

132 - International Rare Metals Refinery, Inc.

Also Known As: Canadian Radium and Uranium Corp.
Also Known As: Pregels Mt. Kisco Refinery

Also Known As: Pregel
State: New York **Location:** Mt. Kisco
Time Period: 1940s
Facility Type: Atomic Weapons Employer

Facility Description: The International Rare Metals Company processed pitchblende ores for the African Metals Corporation to extract radium. The same ores were processed for the Manhattan Engineer District to recover uranium. Other than the coordination of the shipments of ores and sludge, there was no MED involvement at this site. The company did apparently ship a 1 milligram and a 5 milligram source of radium to Chicago.

133 - International Register

Also Known As: Intermatic Inc.
State: Illinois **Location:** Chicago
Time Period: 1943
Facility Type: Atomic Weapons Employer

Facility Description: International Register was involved in the development of uranium machining techniques for the Metallurgical Lab and the Manhattan Project. Records indicate that a test of centerless grinding equipment took place at International Register in February 1943. Uranium rods (1" in diameter and 6" long) were ground with the accuracy of about .001" for the Met Lab.

134 - Iowa Ordnance Plant

Also Known As: Burlington Ordnance Plant
Also Known As: Silas Mason Co.
Also Known As: Mason & Hanger
State: Iowa **Location:** Burlington
Time Period: 1953-1974
Facility Type: Department of Energy

Facility Description: The Burlington Assembly Plant was built in 1947 as a final warhead assembly plant. Assembly functions that were performed by Los Alamos at Sandia Base in New Mexico were transferred to Burlington by 1949. Burlington continued to perform this work until 1974. The Burlington Plant also made high explosive main charges for nuclear weapons from 1947 to 1974. The AEC may have also performed weapons modifications, stockpile sampling, new material system testing, repairs, and weapons retirement activities at the plant. In 1974, the AEC closed out its activities at the plant and transferred all functions to the

Pantex Plant.

CONTRACTOR: Mason & Hanger-Silas Mason Company (1953-1974)

135 - Ithaca Gun Co.

Also Known As: Ithaca Gun Club
State: New York **Location:** Ithaca
Time Period: 1961-1962
Facility Type: Atomic Weapons Employer

Facility Description: During 1961-1962, Ithaca Gun conducted tests involving the forging of hollow uranium billets into tubes for the metallurgical group at National Lead Company of Ohio (Fernald).

136 - J.T. Baker Chemical Co.

Also Known As: Subsidiary of Vick Chemical Company
State: New Jersey **Location:** Phillipsburg
Time Period:
Facility Type: Atomic Weapons Employer

Facility Description: J.T. Baker Chemical was licensed by Atomic Energy Commission to process and distribute refined source material (uranium). The company had previously sought to purchase uranium compounds during World War II, but these were diverted for wartime use.

137 - Jessop Steel Co.

State: Pennsylvania **Location:** Washington
Time Period: 1950-1954
Facility Type: Atomic Weapons Employer

Facility Description: In the early and mid 1950s, the Jessop Steel Company was under contract to the AEC for metal fabrication with some work through DuPont. In the early 1950s, records indicate that uranium metal in nickel scrap was sent to Jessop to make stainless steel piping for Fernald. In 1954, tentative plans were made for Jessop to roll uranium for Fernald billet production.

138 - Joslyn Manufacturing and Supply Co.

Also Known As: Joslyn Stainless Steel Co.

State: Indiana **Location:** Ft. Wayne
Time Period: 1944-1952
Facility Type: Atomic Weapons Employer

Facility Description: Joslyn rolled uranium rods from billets for use by the MED and the AEC in weapons production.

139 - Kaiser Aluminum Corp.

Also Known As: Kaiser Chemicals
State: Illinois **Location:** Dalton
Time Period: 1959
Facility Type: Atomic Weapons Employer

Facility Description: In March 1959, Kaiser performed the extrusion of three CP-5 type fuel elements containing normal uranium oxide for Argonne National Laboratory. Documentation indicates that Kaiser was under consideration to participate in a program to develop alternate sources of uranium, but it is unclear whether that work ever took place.

140 - Kansas City Plant

State: Missouri **Location:** Kansas City
Time Period: 1949-present
Facility Type: Beryllium Vendor Department of Energy

Facility Description: The Kansas City Plant was constructed in 1942 to build aircraft engines for the Navy. After World War II, it was used for storage. In 1949, the AEC asked the Bendix Corporation to take over part of the facility and it began manufacturing nonnuclear components for nuclear weapons. Electrical, electromechanical, mechanical, and plastic components are manufactured or procured by this facility. Beryllium was used at the Kansas City Plant.

In 1993, the Department of Energy officially designated the Kansas City Plant as the consolidated site for all nonnuclear components for nuclear weapons.

As of 1996, production activities at the site were still occurring and expected to continue indefinitely.

CONTRACTORS: Honeywell FM&T (1999-present); Allied-Signal Aerospace (formerly Bendix) (1949-1999)

141 - Kellex/Pierpont

Also Known As: Vitro Corp of America
Also Known As: Kellex Corp.
State: New Jersey **Location:** Jersey City
Time Period: AWE 1943-1953; 1981-1998 (remediation)
Facility Type: Atomic Weapons Employer Department of Energy

Facility Description: In 1943, the M.W. Kellogg Company established the Kellex Corporation to design and construct the first gaseous diffusion uranium enrichment facility, the K-25 Plant, in Oak Ridge TN. This work was conducted under contract to the Manhattan Engineer District (MED) and later to the Atomic Energy Commission (AEC). In the 1940s and early 1950s, Kellex conducted research and development on fuel reprocessing and component testing using uranium hexafluoride, and uranium processing and recovery techniques at. In 1951, the Vitro Corporation of America assumed all the rights and obligations of the Kellex Corporation. In 1953, Kellex discontinued all AEC contract work at the Kellex/Pierpont site.

142 - Kerr-McGee

State: Oklahoma **Location:** Guthrie
Time Period: 1960s
Facility Type: Atomic Weapons Employer

Facility Description: Kerr-McGee processed unirradiated uranium scrap for the AEC, recovering enriched uranium from it for use in the weapons complex. (It is believed that this was work taken over from Spencer Chemicals.)

143 - Kettering Laboratory, University of Cincinnati

State: Ohio **Location:** Cincinnati
Time Period: 1950
Facility Type: Beryllium Vendor

Facility Description: The AEC funded a Kettering Laboratory researcher's investigation of the biological effects of beryllium and its compounds.

144 - Koppers Co., Inc.

State: Pennsylvania **Location:** Verona
Time Period: 1956-1957

Facility Type: Atomic Weapons Employer

Facility Description: In conjuction with the Kennecott Copper Co., Koppers conducted pilot plant tests for the production of uranium hexafluoride. In 1956, Koppers was licensed receive 2000 pounds of refined source material for use in studies toward the preparation of uranium dioxide for reactor fuel elements and 6,150 pounds of refiend source material for use in research and pilot plant investigations on feed material processing. In October 1957, they were authorized to receive 110 pounds of normal uranium hexafluoride. Most of the research works appears to have taken place at the Koppers Research Department in Verona, PA.

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145 - La Pointe Machine and Tool Co.

State: Massachusetts **Location:** Hudson
Time Period: 1956
Facility Type: Atomic Weapons Employer

Facility Description: National Lead of Ohio (Fernald) conducted a single test involving the use of uranium metal on a broaching machine and an arbor press at the La Pointe Machine Tool Company facility.

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146 - Laboratory for Energy-Related Health Research

State: California **Location:** Davis
Time Period: 1958-present
Facility Type: Department of Energy

Facility Description: For over 30 years, LEHR was the site of studies on the long-term health effects of low-level radiation on laboratory animals. Through the support of DOE's predecessor, the AEC, LEHR (also known in the earlier years as the Radiobiology Laboratory) began in 1951 as a research project investigating the biological effects of X-rays. A few years later, the Atomic Energy Commission contracted with LEHR for what became a 33-year study that investigated the health effects of internal exposure to low levels of strontium 90 and radium 226. In a separate but related project, research animals were exposed to cobalt 60 radiation. Research involving the use of small amounts of plutonium 241, thorium 228, and other radioisotopes was also performed. Research at LEHR has focused on: understanding better the effects of exposure to low-level radiation on the skeleton and its blood-forming constituents;

investigating the behavior of certain bone-seeking radioactive materials; studying the beagle as an experimental animal model; exploring how low-level radiation triggers and affects the formation of tumors and development of leukemia; and, developing effective ways to use results gathered from animal studies to assess risks to humans.

147 - Laboratory of Biomedical and Environmental Sciences

State: California **Location:** Los Angeles
Time Period: 1947-present
Facility Type: Department of Energy

Facility Description: The Laboratory of Biomedical and Environmental Sciences (LBES) was established in 1947 on the campus of the University of California, Los Angeles, to provide biomedical and envionmental support to nuclear testing activities. Today's programs are in three areas: nuclear medicine, where the study of positron emission tomography (PET) is applied to medical problems; biomolecular and cellular sciences, which involves factors influencing gene expression, particularly with reference to early molecular events in cancer induction; and environmental biology, which focuses on the basic physiology of plants in arid ecosystems.

148 - Laboratory of Radiobiology and Environmental Health

State: California **Location:** San Francisco
Time Period: 1951-present
Facility Type: Department of Energy

Facility Description: The Laboratory of Radiobiology and Environmental Health (LREH), established by the Atomic Energy Commission in 1951, is an institute for research and training in cell biology. LREH is dedicated to fundamental research and investigation of the ways in which radiation and other energy-related biomedical insults affect cellular processes and lead to detrimental genetic and somatic biomedical effects. Research studies are undertaken to investigate the mechanisms by which perturbation and repair of cellular systems can affect the whole organism, cause cancer in the present generation, and damage future generations. Research focuses specifically on ways in which the organism can cope with such insults. As a research unit in the University of California San Francisco School of Medicine, the laboratory is extensively involved with the

academic programs of the university.

149 - LaCrosse Boiling Water Reactor

State: Wisconsin **Location:** LaCrosse
Time Period: 1967-1969
Facility Type: Department of Energy

Facility Description: The LaCrosse Boiling Water Reactor (LACBWR, now owned and operated by Dairyland Power Cooperative, was one of a series of demonstation plants funded by the Atomic Energy Commission along with commercial utilities. LBCBWR achieved initial criticality in 1967, began commercial operation in November 1969, and was permanently shut down on April 30, 1987. Final reactor defueling was completed on June 11, 1987; storing a total of 333 irradiated fuel assemblies in the 42-foot deep spent fuel pool.

150 - Ladish Co.

State: Wisconsin **Location:** Cudahy
Time Period: 1959-1965
Facility Type: Beryllium Vendor

Facility Description: Ladish supplied beryllium metal and parts to the Y-12 plant.

151 - Lake Ontario Ordnance Works

Also Known As: LOOW
Also Known As: Niagara Falls Storage Site (NFSS)
State: New York **Location:** Niagara Falls
Time Period: 1944-1953; 1983-1986 (remediation)
Facility Type: Department of Energy

Facility Description: The Lake Ontario Ordnance Works (LOOW) was originally constructed for TNT production early in World War II. The site was never used for that purpose and was reassigned to the MED. From 1944-1947, it was used to store uranium ore processing residues from Linde Ceramics. After the war, the AEC continued to use the facility to store uranium ore processing residues, as well as for interim storage of uranium billets (rods) and as a disposal site for radioactive wastes. On site storage ceased by 1953.

152 - Landis Machine Tool Co.

State: Pennsylvania **Location:** Waynesboro
Time Period: 1952
Facility Type: Atomic Weapons Employer

Facility Description: In 1952, National Lead of Ohio (Fernald) personnel performed tests involving the machining of uranium slugs at Landis Machine Tool Company. The tests were performed over a two day period.

153 - Latty Avenue Properties

State: Missouri **Location:** Hazelwood
Time Period: AWE 1967-1974; DOE 1984-1998 (remediation)
Facility Type: Atomic Weapons Employer Department of Energy

Facility Description: The Mallinckrodt Chemical Company conducted uranium milling and refining operations under contracts with the Manhattan Engineer District and the Atomic Energy Commission at the St. Louis Downtown Site in Missouri. Mallinckrodt transported process residues to the St. Louis Airport Site (also in Missouri) for storage until the Commercial Discount Corporation of Chicago purchased them in 1967; Commercial Discount transported the residues to the Latty Avenue Properties for storage and processing. This material was sold to the Cotter Corporation in 1969 and was dried and shipped to their facilities in Canon City, Colorado. By 1974, most of the material had been sold and removed from the Latty Avenue Properties, leaving only residual contamination.

154 - Lawrence Berkeley National Laboratory

Also Known As: Radiation Laboratory
Also Known As: LBL
Also Known As: Lawrence Radiation Laboratory
State: California **Location:** Berkeley
Time Period: 1939-present
Facility Type: Department of Energy

Facility Description: Since the early 1930s, the University of California has leased the Lawrence Berkeley National Laboratory to the Department of Energy for a wide range of energy- related research activities, including research in nuclear and high-energy physics, accelerator research and development, materials research, and chemistry, geology, molecular biology, and biomedical research. Scientists at

Berkeley developed the electromagnetic enrichment process that was installed and operated at the Y-12 plant in Oak Ridge from 1943-1947.

155 - Lawrence Livermore National Laboratory

Also Known As: California Radiation Laboratory
State: California **Location:** Livermore
Time Period: 1950-present
Facility Type: Department of Energy

Facility Description: The Atomic Energy Commission established the Lawrence Livermore National Laboratory as a facility for nuclear weapons research. The Department of Energy (DOE) owns the Lawrence Livermore National Laboratory Main Site and Site 300; DOE and the University of California jointly operate the sites. The Main Site was initially used as a flight training base and an engine overhaul facility. Transition from naval operations to scientific research began in 1950, when the Atomic Energy Commission (AEC) authorized construction of a materials-testing accelerator site. The AEC established the University of California Radiation Laboratory, Livermore Site (the predecessor of the Lawrence Livermore National Laboratory) as a facility for nuclear weapons research. The Department of Energy purchased Lawrence Livermore National Laboratory's Site 300 from local ranchers in the 1950s for use as a remote high-explosives testing facility.

156 - Ledoux and Co.

State: New York **Location:** New York
Time Period: 1946-uncertain
Facility Type: Atomic Weapons Employer

Facility Description: Ledoux and Company's work with uranium and nuclear materials began during the 1930's when the company first developed methods of analysis for uranium bearing substances. From 1946 to 1955, Ledoux and Company provided personnel who assayed uranium ore at the Mallinckrodt Chemical Works in St. Louis. By 1948, Ledoux was also providing personnel to perform assaying work at the Middlesex Sampling Plant,which probably continued until 1955.

Ledoux and Company appears on Fernald's shipping and receipt reports for enriched uranium in 1986.

Today Ledoux and Company represents many fuel

fabricators at enrichment facilities offering surveillance, sampling, and analytical services at our Teaneck, New Jersey laboratory. Ledoux and Company performs sampling, weighing, and analysis of all forms of nuclear materials from geological samples to enriched and depleted UF6. Ledoux and Company has obtained licenses from Nuclear Regulatory Commission to handle Special Nuclear Materials, Source Material, and By-Products.

157 - Linde Air Products

Also Known As: Linde Air Products Div. Of Union Carbide Corp.
Also Known As: Linde
Also Known As: Linde Center
Also Known As: Chandler Plant
Also Known As: Chandler Street Plant
Also Known As: Linde Chandler Plant
State: New York **Location:** Buffalo
Time Period: 1945-1947
Facility Type: Atomic Weapons Employer

Facility Description: The Linde Air Products facility, also known as the Chandler Plant, was involved in the development and production of barrier for the Oak Ridge Diffusion Plant. During World War II, Linde was part of the Carbide and Carbon Chemical Corporation, later known as Union Carbide.

158 - Linde Ceramics Plant

Also Known As: Tonawanda Laboratory
Also Known As: Linde Air
Also Known As: Praxaire
State: New York **Location:** Tonawanda
Time Period: AWE 1940-1950 DOE uncertain-1998 (remediation)
Facility Type: Atomic Weapons Employer Department of Energy

Facility Description: From 1940 to 1948, Linde Ceramics performed uranium processing for the Manhattan Engineer District and the Atomic Energy Commission, predecessor agencies of the Department of Energy (DOE). Linde produced uranium metal and nickel in the Ceramics plant. Limited development activities were also carried out at the Linde Research and Development Laboratory adjacent to the Ceramics Plant. African and Canadian ores were milled to black oxides at the plant. Documents indicate that the

facility was placed on standby as of March 1, 1950. During World War II, Linde was a part of Carbide and Carbon Chemical Corporation, later known as Union Carbide.

159 - Lindsay Light and Chemical Co.

Also Known As: Kerr-McGee
Also Known As: Reed-Keppler Park
State: Illinois **Location:** W. Chicago
Time Period: early 1940s-1953
Facility Type: Atomic Weapons Employer

Facility Description: Lindsay Light and Chemical was a commercial processor of monazite sands, which yield several commercially valuable products, including the radioactive metal thorium. The Manhattan Engineer District and then the Atomic Energy Commission purchased thorium from Lindsay; AEC contractors purchased a variety of products from this firm as well. Documents indicate that the firm supplied thorium to the MED and AEC through at least 1953. The facility received a source material license from the AEC in 1956, and it continued to process radioactive materials for commercial purposes until 1973.

160 - Los Alamos Medical Center

State: New Mexico **Location:** Los Alamos
Time Period: 1952-1963
Facility Type: Department of Energy

Facility Description: Los Alamos Medical Center started as an Army hospital for Manhattan Project workers. A new facility was constructed in 1951 and opened in January 1952. The AEC sold the hospital to a private entity in 1963.

161 - Los Alamos National Laboratory

Also Known As: Los Alamos Scientific Laboratory
State: New Mexico **Location:** Los Alamos
Time Period: 1942-present
Facility Type: Department of Energy

Facility Description: Operated by the University of California since its inception, Los Alamos National Laboratory designed, developed and tested the world's first nuclear weapons. After World War II, Los Alamos (called the Los Alamos Scientific Laboratory) continued as an important nuclear weapons research and development facility.

Research programs included nuclear physics, hydrodynamics, chemisty, metallurgy, radiochemistry and life sciences. LANL also used its research facilities to back up other areas of the weapons production complex, particularly plutonium processing and fabrication of weapon components.

162 - Lovelace Respiratory Research Institute

Also Known As: Inhalation Toxicology Research Institute
Also Known As: ITRI
State: New Mexico **Location:** Albuquerque
Time Period: 1960-present
Facility Type: Department of Energy

Facility Description: The Lovelace Respiratory Research Institute (formerly the Inhalation Toxicology Research Institute, or ITRI) is located on Kirtland Air Force Base. It was established in 1960 to conduct research on the human health consequences of inhaling airborne radioactive materials The Institute is operated for Department of Energy (DOE) by the non-profit Lovelace Biomedical and Environmental Research Institute.

163 - Madison Site (Speculite)

State: Illinois **Location:** Madison
Time Period: AWE 1957-1960; DOE 1992-1998 (remediation)
Facility Type: Atomic Weapons Employer Department of Energy

Facility Description: Dow Chemical operated the Madison Site under subcontract to Mallinckrodt Chemical Company. Dow supplied the AEC with materials (chemicals, induction heating equipment, and metal magnesium metal products) and services. In March 1960, Dow received an order for straightening uranium rods from Mallinckrodt.

164 - Magnus Brass Co.

Also Known As: Magnus Metals
Also Known As: Moanes Brass
State: Ohio **Location:** Cincinnati
Time Period: 1954-1957
Facility Type: Atomic Weapons Employer

Facility Description: The site machined various forms of

uranium metal under subcontract to the National Lead Company (Fernald). The work was performed at two locations: Reading Road (from December 1954 through November 1955) and West 7th Street (from December 1955 through December 1957). Total production machining was approximately two or three hundred billets.

165 - Mallinckrodt Chemical Co., Destrehan St. Plant

Also Known As: St. Louis Downtown Site
State: Missouri **Location:** St. Louis
Time Period: AWE 1942-1957; DOE 1982-1986 (remediation)
Facility Type: Atomic Weapons Employer Department of Energy

Facility Description: From 1942 to 1957, Mallinckrodt Chemical Company conducted a variety of milling and recovery operations with uranium chemical compounds at the St. Louis Downtown Site, also known as the Destrehan Street Plant. The plant refined uranium ore, ultimately producing uranium metal. The activities supported research, development, and production programs for the national defense program. By 1957, the Mallinckrodt Chemical Company had processed more than 45,000 metric tons (50,000 tons) of natural uranium products at its facilities. During closeout of operations in 1957, government--owned buildings were either dismantled or transferred to Mallinckrodt as part of a settlement.

166 - Massachusetts Institute of Technology

Also Known As: MIT, Hood Building
State: Massachusetts **Location:** Cambridge
Time Period: 1942-1963
Facility Type: Atomic Weapons Employer Beryllium Vendor

Facility Description: The Massachusetts Institute of Technology (MIT) was one of the institutions that contributed to early nuclear physics research in the United States. In addition to their research efforts, they also sent scientists to work at Los Alamos. For example, in 1942, MIT experimented on the process of melting and casting uranium metal, extracted uranium from low grade ores, studied the element beryllium, and experimented with nuclear propulsion systems. MIT also explored the coordination and the quality control of these processes. The building, in which the

research was done, was demolished in 1963.

Records indicate that workers at MIT suffered from beryllium-related illnesses as early as 1947.

167 - Mathieson Chemical Co.

Also Known As: Pasadena Chemical Corp.
Also Known As: Olin Mathieson Chemical Co.
Also Known As: Mobil Mining and Minerals Co.
State: Texas **Location:** Pasadena
Time Period: 1951-1953
Facility Type: Atomic Weapons Employer

Facility Description: Mathieson Chemical extracted uranium oxides out of phosphoric acid compounds in a pilot study for the Atomic Energy Commission.

168 - Maywood Chemical Works

Also Known As: Maywood Site
Also Known As: Maywood Interim Storage Site
Also Known As: MISS
Also Known As: Stepan Co.
Also Known As: MCW
State: New Jersey **Location:** Maywood
Time Period: AWE 1947-1950; 1984-1998 (remediation)
Facility Type: Atomic Weapons Employer Department of Energy

Facility Description: From 1916 to 1959, Maywood Chemical Works extracted radioactive thorium and rare earth elements from monazite sands for use in commercial products. From 1947 to 1950 the AEC purchased thorium compounds from the Maywood Chemical Company.

169 - McDaniel Refractory Co.

State: Pennsylvania **Location:** Beaver Falls
Time Period: 1940s
Facility Type: Beryllium Vendor

Facility Description: The Manhattan District History indicates that the McDaniel Refractory was used to fabricate oddly shapped beryllium crucibles or beryllium crucible stopper rods for the Manhattan Project, but was not used on a large-scale production basis.

170 - McKinney Tool and Manufacturing Co.

Also Known As: Parker Rust Proof
Also Known As: Meister-matic Inc.
Also Known As: KC & F
State: Ohio **Location:** Cleveland
Time Period: 1944
Facility Type: Atomic Weapons Employer

Facility Description: Between May and August of 1944, McKinney Tool & Manufacturing of Clevelend, Ohio, turned and ground unbonded slugs to provide fuel for the first nuclear reactors, including the three Chicago piles; the Oak Ridge X-10 reactor; and the Hanford B, D, and F production reactors and 305 test pile.

171 - Medart Co.

State: Missouri **Location:** St. Louis
Time Period: 1951-1952
Facility Type: Atomic Weapons Employer

Facility Description: The Medart Company manufactured steel mill machining equipment which was useful in uranium processing. In 1952, Medart conducted a broaching machine and arbor tests turning uranium for the National Lead Company of Ohio (Fernald). According to a former Medart employee, the bar turning machine was eventually shipped to Fernald for use at the Feed Materials Production Center.

172 - Medina Facility

State: Texas **Location:** San Antonio
Time Period: 1958-1966
Facility Type: Department of Energy

Facility Description: The Medina Modification Center was established in 1958 for component testing, modification, repairs, and refinements. It operated until the early spring of 1966, at which point its functions were transferred to Burlington and Pantex.

CONTRACTOR: Mason & Hanger-Silas Mason (1958-1966)

173 - Metals and Controls Corp.

Also Known As: M & C
Also Known As: Texas Instruments

State: Massachusetts **Location:** Attleboro
Time Period: 1959-uncertain
Facility Type: Atomic Weapons Employer

Facility Description: Records indicate that Metals and Controls Corporation fabricated fuel elements for production reactors, but it is unclear whether its work related to the nuclear weapons complex. For example, Metals and Controls Corporation fabricated uranium foils for reactor experiments and fuel components, fabricated complete reactor cores for the Naval Reactors program, and fabricated uranium fuel elements for experimental and research reactors.

174 - Middlesex Municipal Landfill

Also Known As: MML
State: New Jersey **Location:** Middlesex
Time Period: AWE 1948-1960; DOE 1980-1998
Facility Type: Atomic Weapons Employer Department of Energy

Facility Description: From 1948 to 1960, the Middlesex Sampling Plant conducted thorium and uranium activities and disposed of the wastes at the Middlesex Municipal Landfill.

175 - Middlesex Sampling Plant

Also Known As: MSP
State: New Jersey **Location:** Middlesex
Time Period: 1943-1967; 1980-1998 (remediation)
Facility Type: Department of Energy

Facility Description: In 1943, the Manhattan Engineer District (MED) established the Middlesex Sampling Plant to assay, sample, store, and ship uranium, thorium, and beryllium ores.

Until 1950, the plant was operated by the MED and then the AEC. By 1948, Ledoux and Company and Lucius Pitkin, Inc. personnel were stationed on site to perform assaying work. Another contractor, Perry Warehouse, provided laborers until about 1950.

From 1950 to 1955, United Lead, a subsidiary of National Lead Co., operated the plant for the AEC. The plant discontinued uranium and beryllium assaying and sampling activities in 1955 and was used as a thorium storage and

sampling site until 1967. In 1967, operations at Middlesex were terminated and all remaining thorium sampling activities were transferred to the Feed Materials Production Center and to the Weldon Spring Plant.

CONTRACTOR: United Lead Company (1950-1955)

176 - Midwest Manufacturing Co.

Also Known As: Maytag Co.
State: Illinois **Location:** Galesburg
Time Period: 1944
Facility Type: Atomic Weapons Employer

Facility Description: A November 7, 1944, document indicates that Midwest Manufacturing worked on the "self-lubricating draw die" which was related to metal fabrication for the Manhattan Project.

177 - Mitchell Steel Co.

State: Ohio **Location:** Cincinnati
Time Period: 1954
Facility Type: Atomic Weapons Employer

Facility Description: In 1954, Mitchell Steel Company may have participated in the machining of a sample lot of four hollow extrusion uranium billets from ingots for National Lead of Ohio (Fernald). It is unclear whether Mitchell conducted the test or performed any addition work for NLO or the AEC.

178 - Mitts & Merrel Co.

Also Known As: Genesse Packing Co.
State: Michigan **Location:** Saginaw
Time Period: 1956
Facility Type: Atomic Weapons Employer

Facility Description: In a test for National Lead of Ohio (Fernald), Mitts and Merrell reduced a thorium metal chunk to small particle size pieces in its Hog Grinder.

179 - Monsanto Chemical Co.

Also Known As: Scioto Laboratory
Also Known As: Dayton Project
State: Ohio **Location:** Dayton

Time Period: 1943-1946
Facility Type: Atomic Weapons Employer

Facility Description: In 1943, the Manhattan Engineer District began the Dayton Project to investigate the chemistry and metallurgy of polonium. This work was initially performed at the Monsanto Research Corporation's Scioto research laboratory in Dayton, Ohio. In 1946, the Dayton Project moved to its own facility in Miamisburg, Ohio. In 1947, the Dayton Project became the Mound Plant.

180 - Mound Plant

Also Known As: MOUND
Also Known As: Monsanto Research Corp.
Also Known As: Units 1,3,5
Also Known As: Miamisburg Environmental Management Project (MEMP)
Also Known As: Dayton Project
State: Ohio **Location:** Miamisburg
Time Period: 1947- present
Facility Type: Department of Energy

Facility Description: In 1943, the Manhattan Engineer District began the Dayton Project to investigate the chemistry and metallurgy of polonium. This work was initially performed at the Monsanto Research Corporation's Scioto research laboratory in Dayton, Ohio. In 1946, the Dayton Project moved to its own facility in Miamisburg, Ohio. In 1947, the Dayton Project became the Mound Plant.

The Mound Plant's first mission was to manufacture polonium-beryllium initiators for atomic weapons. As part of this process, the site extracted polonium-210 from irradiated bismuth slugs and machined beryllium parts. Mound stopped producing initiators after the Pinellas Plant in Florida began producing accelerator-type neutron generators in 1957. In 1954, Mound began developing and producing weapons components containing tritium, and in 1969, the plant began recovering and purifying tritium from dismantled nuclear weapons. During the 1950s and 1960s the Mound Plant also developed and produced a variety of nonnuclear weapons components including detonators, cable assemblies, firing sets, ferroelectirc transducers, and explosive timers. In 1995, Mound discontinued weapons component production.

The Mound Plant has also performed nonweapons work. The site developed and manufactured radioisotope thermal generators and conducted research in the following areas:

radioactive waste decontamination; the properties of uranium, protactinium-231, and plutonium-239; and separation of stable isotopes and noble gases. Mound continues to produce thermal generators which are used for remote power applications including space probes.

CONTRACTORS: BWX Technologies Ohio (2000-present); Babcock & Wilcox (1993-2000); EG&G Mound Applied Technologies (1988-1993); Monsanto Chemical Company (1947-1988)

181 - Museum of Science and Industry

State: Illinois **Location:** Chicago
Time Period: 1946-1953
Facility Type: Atomic Weapons Employer

Facility Description: Portions of the East Pavilion of the Museum of Science and Industry were used by employees of the Metallurgical Laboratory and the Argonne National Laboratory. Although the facility was primarily used as office space, it is believed that radioactive materials were handled at this facility and that a spill of radioactive material may have taken place near the service elevator on the ground floor.

182 - National Beryllia

Also Known As: Cercom Quality Products
Also Known As: General Ceramics
State: New Jersey **Location:** Haskell
Time Period: 1973
Facility Type: Beryllium Vendor

Facility Description: Research shows that National Beryllia delivered some parts to Union Carbide (Y-12), though the records indicate there was only partial performance for this purchase order from 1973.

183 - National Bureau of Standards, Van Ness Street

Also Known As: University of the District of Columbia
State: District of Columbia **Location:** Washington
Time Period: 1943-1952
Facility Type: Atomic Weapons Employer

Facility Description: The National Bureau of Standards

contributed to weapons research and development from the early 1940s until 1952. They participated in experiments related to developing the purification process of uranium oxide. From the early 1920s until 1952, the NBS had a radioactivity laboratory used for measuring radium samples for medical purposes.

The National Bureau of Standards also provided oversight for uranium metal production. During World War II, considerable emphasis was placed upon uranium metal production. Researchers at Iowa State soon perfected a magnesium reduction process, which quickly became the standard. The National Bureau of Standards in Washington, DC, among other laboratories, provided quality control of the production of uranium metal using the magnesium process. Records also indicate that the NBS worked with thorium.

184 - National Guard Armory

Also Known As: Washington Park Armory
State: Illinois **Location:** Chicago
Time Period: AWE 1942-1951; DOE 1980s-1988 (remediation)
Facility Type: Atomic Weapons Employer Department of Energy

Facility Description: In the 1940s, the Manhattan Project leased the National Guard Armory from the State of Illinois for uranium processing and radioactive material storage. In 1951, the site was returned to the State of Illinois.

185 - National Research Corp.

Also Known As: NRC
State: Massachusetts **Location:** Cambridge
Time Period: 1944-1952
Facility Type: Atomic Weapons Employer

Facility Description: National Research had Manhattan Engineer District experience in working with vacuum centrifugal castings, in developing jets and baffles for diffusion pumps, and in devloping cold trap systems. National Research's work with vacuum centrifugal castings (contract W-7405-eng-293) involved casting tuballoy (uranium metal) using the "lost wax" technique. In 1948, National Research did work for Mallinckrodt involving the vacuum melting of approximately 500 pounds of uranium.

A December 1946 letter indicates that National Research

Corp. requested a "leak detector for use in connection with some special development work on beryllium." It is not clear whether this work was ever actually done.

186 - Naval Research Laboratory

State: District of Columbia **Location:** Washington
Time Period: AWE 1943-1945 ; DOE 1959
Facility Type: Atomic Weapons Employer Department of Energy

Facility Description: During World War II, the Naval Research Laboratory produced quantities of enriched uranium through a thermal diffusion process. The Navy built a small pilot plant at the Anacostia facility for this purpose.

In the 1950s, the Laboratory handled radioactive materials for different research applications, and it is listed in the AEC annual report for 1959 as having just over $2 million in AEC-owned equipment on-site.

187 - Nevada Test Site

State: Nevada **Location:** Mercury
Time Period: 1951-present
Facility Type: Department of Energy

Facility Description: The Nevada Test Site was established in 1951. The mission of the Test Site is to conduct field tests of nuclear devices in connection with the research and development of nuclear weapons. The Nevada Test Site, slightly larger than the State of Rhode Island, has been the primary location for testing nuclear explosive devices since Operation Ranger was first conducted in 1951. In addition, the site is used for low-level waste disposal. Currently, the site is allowing other types of testing at the site, conducting remediation, and is in a standby mode so that if nuclear weapons testing ever is needed again, it could be conducted at the Nevada Test Site.

CONTRACTORS: Bechtel Nevada (1996-present); Reynolds Electrical & Engineering Company (1952-1995)

188 - New Brunswick Laboratory

State: New Jersey **Location:** New Brunswick
Time Period: 1948-1977
Facility Type: Department of Energy

Facility Description: From 1948 to 1978, the Atomic Energy Commission (AEC), a predecessor agency of the Department of Energy (DOE), used the New Brunswick Laboratory as a general nuclear standards used for assaying nuclear and non-nuclear materials used in reactor and weapons programs. The New Brunswick Laboratory (NBL) provided a variety of activities using nuclear materials, including thorium and uranium ores, high- purity plutonium and americium, and enriched uranium.

189 - New England Lime Co.

Also Known As: NELCO
State: Connecticut **Location:** Canaan
Time Period: 1963
Facility Type: Atomic Weapons Employer

Facility Description: In 1963, the New England Lime Co. (NELCO) conducted tests on “prill,” a magnesium-uranium waste product, to determine the feasibility of recovering these materials for re-use in the nuclear weapons production system. The prill came from the AEC’s Fernald facility. Six drums of prill were sent from Fernald to NELCO for the test.

The New England Lime Company also provided magnesium and calcium to the Manhattan Engineer District and Atomic Energy Commission from 1944-1956. This work did not involve radioactive materials.

190 - New York University

State: New York **Location:** New York
Time Period: 1946-1952
Facility Type: Atomic Weapons Employer

Facility Description: New York University worked on the development of counting equipment for the Manhattan Engineer District/Atomic Energy Commission. NYU handled a small quantity of uranium for research purposes.

191 - Norton Co.

State: Massachusetts **Location:** Worcester
Time Period: 1945-1949
Facility Type: Atomic Weapons Employer Beryllium Vendor

Facility Description: Norton did a large volume of business with the AEC involving the manufacture of refractory products from boron, beryllium, uranium and thorium.

In the fall 1945, the MED asked the Norton Company to develop methods for shaping beryllium oxide powder into rods and hexagonal rings using molds. Norton also used the process to produce beryllium oxide-uranium oxide hexagons. In 1947, the AEC anticipated that when the Norton Company process went into production, it would use about 5000 pounds of beryllium oxide per month. By 1949, one death due to beryllium poisoning had been recorded at Norton.

Norton also provided uranium crucibles for Argonne and fused thoria slugs which were irradiated in Hanford reactors. In 1949, Norton supplied the AEC with uranium oxide.

192 - Nuclear Materials and Equipment Corp. (NUMEC) (Apollo)

Also Known As: Babcock & Wilcox
Also Known As: Atlantic Richfield Corp. (ARCO)
State: Pennsylvania **Location:** Apollo
Time Period: late 1950s-1983
Facility Type: Atomic Weapons Employer Beryllium Vendor

Facility Description: The Nuclear Material and Equipment Company (NUMEC) began operations at the Apollo and Parks Township facilities in the late 1950s. The Atlantic Richfield Company (ARCO) purchased the stock of NUMEC in 1967. In 1971, Babcock & Wilcox (B&W) purchased NUMEC and is the current owner of the Apollo and Parks Township facilities.

NUMEC processed unirradiated uranium scrap for the AEC in the 1960s. This facility also provided enriched uranium to the naval reactors program and included a plutonium plant, plutonium plant storage area, highly enriched uranium fuel facility, metals and hafnium complex and a uranium hexafluoride storage area. The facility also fabricated plutonium-beryllium neutron sources.

The B&W Apollo facility ceased manufacturing nuclear fuel in 1983.

193 - Nuclear Materials and Equipment Corp. (NUMEC) (Parks Township)

Also Known As: Babcock & Wilcox
Also Known As: Atlantic Richfield Corp. (ARCO)
State: Pennsylvania **Location:** Parks Township
Time Period: late 1950s-1980
Facility Type: Atomic Weapons Employer

Facility Description: The Nuclear Material and Equipment Company (NUMEC) began operations at the Apollo and Parks Township facilities in the late 1950s. The Atlantic Richfield Company (ARCO) purchased the stock of NUMEC in 1967. In 1971, Babcock & Wilcox (B&W) purchased NUMEC and is the current owner of the Apollo and Parks Township facilities.

The primary function of the NUMEC Parks Township facility was the fabrication of plutonium fuel, the preparation of high-enriched uranium fuel, and the production of zirconium/hafnium bars. The Parks Township facility ceased fuel fabrication activities in 1980.

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194 - Nuclear Metals, Inc.

Also Known As: Starmet, Inc.
Also Known As: MIT Met Lab
Also Known As: Whitaker
State: Massachusetts **Location:** Concord
Time Period: 1942-1960
Facility Type: Atomic Weapons Employer Beryllium Vendor

Facility Description: The work of Nuclear Metals, Inc. began in 1942 as a metallurgical lab for MIT. In 1954, it was acquired by Arthur D. Little and its name was changed to Nuclear Metals. In 1958, the company moved from Cambridge (where the MIT lab had been) to Concord. The company's current name is Starmet.

In 1958, Nuclear Metals began operating as a facility that produced depleted uranium products, primarily as penetrators for armor-piercing ammunition. It also supplied copper-plated uranium billets which were used to fuel Savannah River's production reactors. Other work at this facility included the manufacture of metal powders for medical applications, photocopiers and other applications.

Records indicate that Nuclear Metals was involved in beryllium work for the AEC in 1957 and also in 1960.

Thorium and thorium oxide was handled at the site under license to the NRC.

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195 - Oak Ridge Gaseous Diffusion Plant (K-25)

Also Known As: East Tennessee Technology Park (ETTP)
State: Tennessee **Location:** Oak Ridge
Time Period: 1943-1987; 1988-present (remediation)
Facility Type: Department of Energy

Facility Description: The K-25 gaseous diffusion plant at East Tennessee Technology Park (ETTP) was built as part of the World War II Manhattan Project to supply enriched uranium for nuclear weapons production. Construction of the ETTP started in 1943 with the ETTP Building, the first diffusion facility for large-scale separation of uranium-235. The ETTP Building was fully operable by August 1945. Additional buildings involved in the enrichment process were operable by 1956. Along with the plants in Paducah, KY, and Portsmouth, OH, the site was used primarily for the production of highly-enriched uranium for nuclear weapons until 1964.

From 1959 to 1969, focus shifted to the production of commercial-grade, low-enriched uranium. In 1985, declining demand for enriched uranium caused the enrichment process to be placed on standby. In 1987, the process was stopped permanently.

The ETTP was also a host for centrifuge facilities constructed as part of a program to develop and demonstrate uranium-enrichment technology. These facilities have also been shut down.

CONTRACTORS: Bechtel Jacobs (1998–present); Lockheed Martin Eenrgy Systems, Inc. (1994-1998); Union Carbide & Carbon Corp. (1943-1984)

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196 - Oak Ridge Hospital

State: Tennessee **Location:** Oak Ridge
Time Period: 1943-1959
Facility Type: Department of Energy

Facility Description: Originally a US Army Hospital for the Manhattan Project workers, this facility was operated for the

AEC by Roane-Anderson Co. In 1959, ownership of the hospital was privatized and its operation taken over by the Oak Ridge Hospital of the Methodist Church.

197 - Oak Ridge Institute for Science Education (ORISE)

Also Known As: Oak Ridge Associated Universities (ORAU)
Also Known As: Oak Ridge Institute for Nuclear Studies
State: Tennessee **Location:** Oak Ridge
Time Period: 1946-present
Facility Type: Department of Energy

Facility Description: Oak Ridge Associated Universities (ORAU) was established in 1946 to manage the Oak Ridge Institute for Nuclear Studies (ORINS). It is a private, not-for-profit consortium of 88 colleges and universities with a mission to provide and develop capabilities critical to the nation's technology infrastructure, particularly in the areas of energy, education, health, and the environment. In 1966, ORINS became known by the name of the operating contractor, ORAU. In the early 1990s, the name was changed to ORISE, the Oak Ridge Institute for Science Education.

The South Campus Facility was originally established in 1945 to study accidental irradiation of cattle during testing of the first atomic bomb near Alamogordo, New Mexico. The scope of this research soon included studies of the introduction and migration of radioisotopes in the food chain as well as other agricultural problems. The University of Tennessee Scarboro Operations Site, once operated as a comparative animal research laboratory and an agricultural experiment station. The Scarboro Operations site was one of several government-owned facilities assigned to ORAU and ORISE in 1981.

CONTRACTOR: Oak Ridge Associated Universities (1946-present)

198 - Oak Ridge National Laboratory (X-10)

Also Known As: Clinton Laboratories
State: Tennessee **Location:** Oak Ridge
Time Period: 1943-present
Facility Type: Department of Energy

Facility Description: During the Manhattan project, the Oak Ridge National Laboratory (ORNL) site was used by the

University of Chicago Metallurgical Laboratory to construct the first pile semiworks - a test plant that would move the plutonium product process from the research stage to large scale production. DuPont began contruction of the test pile, the X-10 reactor in March 1943 and was ready for operations by January 1944. A research facility designated as the Clinton Laboratories was built during the war to support X-10 reactor activities and included chemistry, health and engineering divisions.

After the war, the laboratory was transformed from a war production facility to a nuclear research center and changed its name to Oak Ridge National Laboratory in 1948. The Laboratory's research role in the development of nuclear weapons decreased over time, but the scope of its work expanded to include production of isotopes, fundamental hazardous and radioactive materials research, environmental research, and radioactive waste disposal.

CONTRACTORS: University of Chicago (1943-1945); Monsanto Chemical (1945-1947); Union Carbide and Carbon Corp. (1948-1984); Martin Marietta Energy Systems (1984-1994); Lockheed Martin Energy Research Corp. (1994-1998); UT Battelle (2000-present)

199 - Oliver Corp.

State: Michigan **Location:** Battle Creek
Time Period: 1956-1957; 1961-1962.
Facility Type: Atomic Weapons Employer

Facility Description: The Oliver Corporation participated in green salt briquetting testing for the National Lead Company of Ohio (Fernald). Records indicate that testing took place in November 1956, July 1957, May 1961 and May 1962. It is unclear from the documentation whether the company ever performed this work at a production level. The Oliver Corporation AEC license history indicates that it was licensed to receive 350 pounds of normal uranium (40-6977 - 03/08/63) and 20,000 pounds of uranium enriched U-235 (70-646 – 03/26/62) (but comments that records indicate that it is not related to its work for NLO).

200 - Pacific Northwest National Laboratory (PNNL)

Also Known As: Battelle (PNL)
State: Washington **Location:** Richland
Time Period: 1965-present

Facility Type: Department of Energy

Facility Description: Pacific Northwest National Laboratory's began in 1965 when Battelle won the contract to perform research and development for the Hanford Site. The Laboratory's first projects were based on the needs of the Hanford Site and included protecting the environment, fabricating reactor fuel, and designing reactors. These projects, staff expertise in diverse fields, and national needs led to outstanding research and development in several key areas: environment, health, energy, computer science, and security.

CONTRACTOR: Battelle Memorial Institute (1965-present)

201 - Pacific Proving Ground *

State: Marshall Islands **Location:** Marshall Islands
Time Period: 1946-1962
Facility Type: Department of Energy

Facility Description: The United States conducted one hundred and two tests in its Pacific Proving Grounds between 1946 and 1962. The United States conducted 23 nuclear weapons tests at Bikini Atoll (1946 and 1954-1958), 43 tests at Enewetak Atoll (1948 and 1951-1958), 12 tests at Johnston Island (1958 and 1962), and 24 tests at Christmas Island (1962).

* The Pacific Proving Grounds included Bikini Atoll, Enewetak Atoll, Johnston Island (nuclear weapons testing activities only), and Christmas Island (U. S. nuclear weapons testing activities only).

202 - Paducah Gaseous Diffusion Plant

State: Kentucky **Location:** Paducah
Time Period: 1952-1998
Facility Type: Department of Energy

Facility Description: The Department of Energy’s Paducah Gaseous Diffusion Plant opened in 1952 to enrich uranium for nuclear weapons. During the plant’s Cold War history, more than one million tons of uranium was processed. Uranium enriched at the site today is used as nuclear fuel in commercial power plants. The Paducah plant performs the first step in the uranium enrichment process, followed by further enrichment at the Ohio plant.

Construction of the Paducah plant began in 1951 in response to the increased demand for highly-enriched uranium resulting from nuclear weapons production. Initial operations began in 1952 and full operation was reached by 1955.

In addition to producing enriched uranium for weapons production, the plant also supplied enriched uranium for the Navy and for commercial fueld. The Paducah Plant also acted as the uranium hexafluoride feed point for all gaseous diffusion plants until 1964. Since 1991, the Paducah Plant has only produced low-enriched uranium for use as fuel in commercial nuclear power plants.

The plant was taken over by the United States Enrichment Corporation in 1998.

CONTRACTORS: Lockheed Martin Energy Systems, Inc. (1984-1998); Union Carbide Corporation Nuclear Division (1952-1984)

203 - Painesville Site (Diamond Magnesium Co.)

Also Known As: Uniroyal
Also Known As: Lonza Chemical
State: Ohio **Location:** Painesville
Time Period: AWE early 1940s; DOE 1992-1998 (remediation)
Facility Type: Atomic Weapons Employer Department of Energy

Facility Description: In the early 1940s, the Defense Plant Corporation constructed a magnesium production facility on the Painesville site, which was owned by the Diamond Magnesium Company. The Atomic Energy Commission (AEC) provided the site with 800 tons of radioactively contaminated scrap steel which was used to control chlorine emissions during the magnesium production. Storage of this scrap metal radioactively contaminated soil at the Painesville site.

204 - Pantex Plant

State: Texas **Location:** Amarillo
Time Period: 1951-present
Facility Type: Department of Energy

Facility Description: In the 1950s, the Atomic Energy

Commission began manufacturing high explosives for nuclear weapons at the Pantex Plant (Pantex). Today, Pantex continues to fabricate high explosives and assemble nuclear weapons. The principal operations at this site, however, are the dismantling of retired nuclear weapons and the maintenance of the nation's nuclear weapons stockpile. Pantex, which is operated by DOE's Office of Defense Programs, is the only facility in the United States that performs these operations.

CONTRACTORS: BWXT Pantex (2001-present); Mason & Hanger-Silas Mason(1956-2000); Proctor & Gamble (1951-1956)

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205 - Peek Street Facility**

Also Known As: Knolls Atomic Power Laboratory
Also Known As: Knolls Atomic Power Lab of General Electric Co.
Also Known As: Sacandaga Site
State: New York **Location:** Schenectady
Time Period: unknown
Facility Type: Department of Energy

Facility Description: A note in the file for the Sacandaga facility indicates that Peek Street was a predecessor to the Knolls Atomic Power Laboratory.

**Consistent with the Act, coverage is limited to activities not performed under the responsibility of the Naval Nuclear Propulsion program.

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206 - Penn Salt Co.

Also Known As: Pennsylvania Salt Co.
State: Pennsylvania **Location:** Philadelphia/Wyndmoor
Time Period: 1953-1956
Facility Type: Atomic Weapons Employer

Facility Description: Pennsylvania Salt experimented with samples of fluoride containing byproducts from AEC operations to determine if they could be used for hydrogen fluoride production or to extract uranium from the material. Penn Salt was licensed to receive scrap from AEC operations.

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207 - Philadelphia Naval Yard

Also Known As: Abelson's Pilot Plant
Also Known As: Koppers Co.
Also Known As: Naval Boiler & Turbine Laboratory
State: Pennsylvania **Location:** Philadelphia
Time Period: 1944-1945
Facility Type: Atomic Weapons Employer

Facility Description: In 1944, the Navy built a thermal diffusion pilot plant using concentric hot and cold pipes at the Philadelphia Naval Yard. The S-50 plant at Oak Ridge was a large-scale version of this plant. A large quantity of uranium hexafluoride was processed at this site.

208 - Picatinny Arsenal

State: New Jersey **Location:** Dover
Time Period: 1948-early 1950s
Facility Type: Atomic Weapons Employer

Facility Description: The Picatinny Arsenal in Dover, New Jersey has assisted in the development and small-scale manufacturing of components since 1948. Picatinny has worked on fuzes, detonators, firing sets, and generators for U.S. Army nuclear weapons, including nuclear artillery shells, demolition charges, and missile warheads. Although the Picatinny Arsenal disbanded its nuclear munitions group in the early 1950s, subsequent work did involve some nuclear-weapons-related tasks.

209 - Pinellas Plant

State: Florida **Location:** Clearwater
Time Period: 1957-1994
Facility Type: Department of Energy

Facility Description: The Pinellas Science, Technology, and Research (S.T.A.R.) Center, formerly Pinellas Plant, was built in 1957 by the United States Government to produce precisely-timed neutron generators used to initiate nuclear explosions. As older nuclear weapons were removed from the national stockpile, the accelerator-type neutron generators produced at Pinellas gradually replaced polonium-beryllium initiators manufactured at the Mound site. Pinellas also fabricated other weapons components including lightning-arrestor connectors, specialty capacitors, crystal resonators, magnetics, and optoelectronic devices.

In September 1994, Pinellas stopped producing weapons-

related components and began to change its mission to environmental management. The Department of Energy (DOE) transferred much of the Pinellas production capability to the Kansas City Plant in Missouri and the Sandia National Laboratory in New Mexico.

CONTRACTORS: Lockheed Martin Specialty Components, Inc.(1992-1994); General Electric Company (1957-1992)

210 - Piqua Organic Moderated Reactor

Also Known As: Puqua Nuclear Power Facility
Also Known As: PNPF
State: Ohio **Location:** Piqua
Time Period: 1963-1966
Facility Type: Department of Energy

Facility Description: From 1963 to 1966, the Piqua Nuclear Power Facility was operated as a demonstration project by the City of Piqua. The facility contained a 45.5-megawatt (thermal) organically cooled and moderated reactor. In 1966, the AEC discontinued facility operations and terminated its contract with the city. The AEC dismantled and decommissioned the reactor between 1967 and 1969. The reactor fuel coolant and most of the radioactive materials were removed from the site.

211 - Podbeliniac Corp.

Also Known As: Capitol Associates
State: Illinois **Location:** Chicago
Time Period: 1957
Facility Type: Atomic Weapons Employer

Facility Description: In 1957, National Lead Company of Ohio (Fernald) used equipment at the Podbeliniac Corp. to conduct an extraction experiment using uranium in solution. NLO later traveled to the site to oversee the decontamination of equipment used in the experiment.

212 - Portsmouth Gaseous Diffusion Plant

State: Ohio **Location:** Piketon
Time Period: 1954-1993
Facility Type: Department of Energy

Facility Description: The U.S. began construction of Portsmouth in 1952 in order to expand the nation's gaseous

diffusion program. The gaseous diffusion plants already operating in Oak Ridge, TN and Paducah, KY were not able to fulfill the nation's need for highly enriched and low-enriched uranium. Portsmouth was used for isotope separation. Beginning in 1954, Portsmouth produced highly enriched uranium (which contains more than 20 percent uranium-235) to support nuclear weapons production and, later, for use by submarine, research, and test reactors. The high-enrichment portion of the diffusion cascade was shut down in 1991. In 1954, the plant also began producing low-enriched uranium (which contains about three percent uranium-235 and ninety-seven percent uranium-238) for use as fuel by commercial nuclear power plants. In the early 1980's, a gas centrifuge uranium enrichment program was initiated at Portsmouth, however, this process was never fully implemented.

Only July 1, 1993, the U.S. Enrichment Corporation (USEC), a government-owned corporation formed under the Energy Policy Act of 1992, assumed control of the plant's production activities. Under USEC control, the plant continues to produce low-enriched uranium for commercial use. The Department of Energy maintains responsibility for addressing the environmental legacy left by historic plant operations.

CONTRACTORS: Lockheed Martin Energy Systems, Inc. (1986-1998); Goodyear Atomic Corporation (1956-1986)

213 - Precision Extrusion Co.

State: Illinois **Location:** Bensenville
Time Period: 1949-1950; 1956-1959
Facility Type: Atomic Weapons Employer

Facility Description: Precision Extrusion was involved in several projects for the Atomic Energy Commission and Argonne National Laboratory. From 1949 to 1950, it extruded experimental fuel channel tubes from aluminum and aluminum-lithium alloys. During 1956 through 1959, Precision Extrusion performed several uranium extrusion projects on a small-scale basis.

214 - Princeton Plasma Physics Laboratory

State: New Jersey **Location:** Princeton
Time Period: 1951-present
Facility Type: Department of Energy

Facility Description: In 1951, the Atomic Energy

Commission (AEC), a predecessor agency of the Department of Energy (DOE), began operating the Princeton Plasma Physics Laboratory (PPPL) on Site C and Site D of the James Forrestal Campus. This property is owned by Princeton University. Research at PPPL began with construction of the Model-C Stellerator, which was later converted to a pulse-operated device. Today, this laboratory continues to conduct research on nuclear fusion and development of nonweapons applications of this technology.

CONTRACTOR: Princeton University (1951-present)

215 - Project Chariot Site

State: Alaska **Location:** Cape Thompson
Time Period: 1962; 1993 (remediation)
Facility Type: Department of Energy

Facility Description: Project Chariot was part of the U.S. Atomic Energy Commission's Plowshare Program established to test peaceful uses of nuclear explosions. The objective of Project Chariot was to create a deep water harbor for the eventual shipment of coal, oil, and other natural resources thought to exist along this section of the Alaskan coast. In 1962, the U.S. Geologic Survey (USGS) conducted a study to determine the dispersal of radioactive products from a buried nuclear explosion. Later in 1962, before any nuclear explosives were detonated, Project Chariot was canceled. After this cancellation, the USGS excavated and buried the soil contaminated from its study. In 1993, the Department of Energy removed the contaminated soil and shipped it offsite for disposal.

216 - Project Faultless Nuclear Explosion Site

State: Nevada **Location:** Central Nevada Test Site
Time Period: 1967-1974
Facility Type: Department of Energy

Facility Description: Project Fautless was an underground nuclear test explosion conducted at the Central Nevada Test Site, which was part of a program designed to improve the United States' ability to detect, identify, and locate underground nuclear exposions. The Faultess test was conducted to determine the suitablity of the area for additional seismic testing. Non-nuclear experiments designed to determine the behavior of seismic waves were also conducted in the vicinity.

Drilling for this project began July 1967; the operation period began on November 27, 1967. The shot was fired on January 19, 1968. On December 9, 1979, the site was placed in caretaker status and demobilization and restoration work was conducted during fiscal 1974.

217 - Project Gasbuggy Nuclear Explosion Site

State: New Mexico **Location:** Farmington
Time Period: 1967-1973; 1978 ; 1992-present (remediation)

Facility Type: Department of Energy

Facility Description: The Project Gasbuggy site was the location of one of the nuclear test explosions conducted as part of the AEC's Plowshare program that was initiated in 1957 to develop peaceful (industrial and scientific) applications for nuclear explosives. Drilling for this operation began on February 11, 1967. On December 10, 1967, a 29 kiloton nuclear yield device was detonated in an underground shaft in natural gas and shale deposits at the Gasbuggy site. The test was conducted to determine whether nuclear explosives would stimulate the release of natural gas not recoverable by conventional methods. The operation ended in 1973 and the site was on standby until cleanup began in August 1978. A second shot scheduled for this site, named "Coach" was canceled due to the fact that the Gasbuggy shot resulted in a venting to the atmosphere.

218 - Project Gnome Nuclear Explosion Site

Also Known As: Gnome
State: New Mexico **Location:** Carlsbad
Time Period: 1960-1962
Facility Type: Department of Energy

Facility Description: The Project Gnome Test site was the location of one of the nuclear test explosions conducted as part of the part of the AEC's plowshare program, which was initiated in 1957 to develop peaceful (industrial and scientific) applications for nuclear explosives. Shaft excavation began July 1, 1960. In December 10, 1961, Shot Gnome, a 3 kiloton yield nuclear device, was detonated in an underground shaft to identify the effects and products of an underground nuclear explosion in a salt medium. The shot vented some radioactivity into the atmosphere. Reentry activities were completed in June 1962.

219 - Project Rio Blanco Nuclear Explosion Site

Also Known As: CONOCO
Also Known As: CER Geonuclear Corp.
State: Colorado **Location:** Rifle
Time Period: 1973-1976
Facility Type: Department of Energy

Facility Description: The Rio Blanco site was the location of one of the nuclear tests conducted as part of the AEC's Plowshare program that was initiated in 1957 to develop peaceful (industrial and scientific) applications for nuclear explosives. The operational period began May 2, 1973. On May 17, 1973, three 33 kiloton yield nuclear devices were detonated in a deep well in a test designed to increase natural gas production from low-permeability sandstone. These explosions, known as the Rio Blanco shot, marked the last nuclear test explosions of the Plowshare program. The operation ended in June 1976. The Rio Blanco site was plugged and abandoned in 1976 and returned to the owner in March 1978.

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220 - Project Rulison Nuclear Explosion Site

State: Colorado **Location:** Grand Valley
Time Period: 1969-1971; 1972-1978 (remediation)
Facility Type: Department of Energy

Facility Description: The Project Rulison site was the location of one of the nuclear test exposions conducted as part of the AEC's Plowshare program, which was initiated in 1957 to develop peaceful (industrial and scientific) applications for nuclear explosives. Drilling began in May 1968. On September 10, 1969, a forty kiloton yield nuclear device was detonated deep underground in a sandstone formation. The test was designed to increase natural gas production from low-permeability sandstone. Drillback operations began in April 1970 and the rubble chimney was reached on July 28, 1970. Preparation for production flaring continued through August 1970 and included several short flaring tests during August. The production flaring operation began on October 4, 1970. It included for different flaring periods and ended on April 23, 1971. The Rulison site was placed on standby status in May 1971 until June 1972 when cleanup operations were initiated. The site was returned to its owner in March 1978.

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221 - Project Shoal Nuclear Explosion Site

State: Nevada **Location:** Fallon
Time Period: 1962-1964
Facility Type: Department of Energy

Facility Description: Project Shoal was an underground nuclear test explosion which was part of a program designed to improve the United States' ability to detect, identify, and locate underground nuclear explosions. The Shoal test was conducted to determine the behavior and characteristics of seismic signals generated by nuclear expolsions in specific geological formations and to differentiate them from seismic signals generated by earthquakes.

Construction for this shot began in late 1962. The shot was fired on October 10, 1963. Post-shot drilling began October 28, 1963; drilling and sampling of one vertical bore hole was completed on December 20, 1963. Reopening and sampling the USBM#1 bore hole was completed on January 15, 1964. Site deactivation of the Shoal Project began on October 28, 1963 and rollup was completed by January 31, 1964.

222 - Puerto Rico Nuclear Center

State: Puerto Rico **Location:** Mayaguez
Time Period: 1957-1976
Facility Type: Department of Energy

Facility Description: The Puerto Rico Nuclear Center (also known as the Center for Energy and Environment Research) was established in 1957 as a nuclear training and research institution. The facility included a one megawatt MTR research reactor, which became operational in 1960. During the next ten years, the AEC supported training and research activities at an annual level of approximately $2 million. The MTR was shut down in 1971 and replaced a two megawatt TRIGA research reactor. Except for brief periods of time, TRIGA was never operated at power levels in excess of 1.2 megawatts.

In 1976, the facility was renamed the Center for Energy and Environmental Research (CEER) and the mission was broadened to include research, devlopment and training for both nuclear and non-nuclear energy technologies. The programs were transferred to the University of Puerto Rico at that time.

The TRIAGA reactor was shut down on September 30, 1976 and a program fro decommissioning and removal of the

reactor was initiated.

CONTRACTOR: University of Puerto Rico(1957-1976)

223 - Purdue University

Also Known As: Chemistry Building
Also Known As: Locomotive Lab
State: Indiana **Location:** Lafayette
Time Period: 1940s
Facility Type: Atomic Weapons Employer

Facility Description: Purdue was involved in nuclear physics research during the Manhattan Project.

224 - Quality Hardware and Machine Co.

Also Known As: Ravenswood Venture
Also Known As: Marden Manufacturing
State: Illinois **Location:** Chicago
Time Period: 1944-1945
Facility Type: Atomic Weapons Employer

Facility Description: In 1944, Quality Hardware had a contract to support the University of Chicago. The company canned experimental unbonded uranium slugs for Hanford and may have canned all of the slugs used in the Hanford production reactors during World War II.

225 - R. Krasburg and Sons Manufacturing Co.

State: Illinois **Location:** Chicago
Time Period: 1944
Facility Type: Atomic Weapons Employer

Facility Description: In 1944, R. Krasberg entered into a subcontract with the University of Chicago for services and supplies for the Metallurgical Laboratory. The subcontract required Krasberg to provide necessary personnel, facilities and equipment to produce special machining of parts for special equipment, tools, jigs, fixtures, etc., from materials furnished by the University. It is unclear from the documentation whether Krasberg handled any radioactive materials as part of its work.

226 - R. W. Leblond Machine Tool Co.

State: Ohio **Location:** Cincinnati
Time Period: 1961
Facility Type: Atomic Weapons Employer

Facility Description: National Lead Company of Ohio (Fernald) contracted with Leblond Machine for the purchase of a rapid boring machine. In 1961, acceptances tests, using 17 tons of natural uranium, were conducted at Leblond Machine.

227 - Radium Chemical Co.

Also Known As: Radium Luminous Materials Corp.
Also Known As: J. Kelly
State: New York **Location:** New York
Time Period: mid1940s
Facility Type: Atomic Weapons Employer

Facility Description: In August 1943, Radium Chemical Co. shipped a 100-milligram source of radium to Chicago, presumably to the Met Lab. The Madison Square Area Office entered into a contract with Radium Chemical in 1945, but no details of the contract are available. The Radium Chemical Co. was primarily a source of radium needles for cancer therapy.

228 - Rare Earths/W.R. Grace

State: New Jersey **Location:** Wayne
Time Period: AWE 1955-1967; DOE uncertain-1998
Facility Type: Atomic Weapons Employer Department of Energy

Facility Description: From 1948 to 1971, Rare Earths, Inc. and W.R. Grace and Co. operated a plant at the Wayne site to extract thorium and rare earth elements from monazite sand ore, primarily for commerical purposes. The company entered into an agreement with the AEC in 1955.

229 - Reed Rolled Thread Co.

State: Massachusetts **Location:** Worcester
Time Period: 1955
Facility Type: Atomic Weapons Employer

Facility Description: In 1955, Reed Rolled Thread and Die was scheduled to thread roll a test lot of 1500 Savannah

River plant slugs for National Lead Company of Ohio (Fernald).

230 - Rensselaer Polytechnic Institute

State: New York **Location:** Troy
Time Period: unknown
Facility Type: Atomic Weapons Employer

Facility Description: Rensselaer conducted research on anisotopic self-diffusion in metals. Documentation is unclear as to the time period or quantitiy of radioactive materials handled.

231 - Revere Copper and Brass

State: Michigan **Location:** Detroit
Time Period: AWE 1943-1950s; BE 1946-1950
Facility Type: Atomic Weapons Employer Beryllium Vendor

Facility Description: Between 1943 and 1946, Revere Copper and Brass extruded uranium rods in its Detroit plant. During the late 1940s and early 1950s Revere rolled or extruded uranium rods.

Revere also extruded beryllium ingots and billets into rods at its Detroit plant between 1946 and 1950. Revere had a contract with the AEC for beryllium work, but not with the MED. Revere also worked with beryllium alloys. Some of the beryllium work was done on parts or components for the Materials Testing reactor.

232 - Rocky Flats Plant

State: Colorado **Location:** Golden
Time Period: 1951-present
Facility Type: Department of Energy

Facility Description: Rocky Flats was built in 1951 as a plutonium and uranium component manufacturing center. From 1952 to 1989, the site's primary mission was to fabricate the "pit" that contains the heavy metals and serves as the trigger device for nuclear warheads. Rocky Flats was also responsible for recycling plutonium from scrap and plutonium retrieved from retired nuclear warheads. The final products of this recycling included components and assemblies manufactured from uranium, plutonium,

beryllium, stainless steel, and other metals. Production activities included metalworking, component fabrication and assembly, chemical recovery and purification of plutonium, and associated quality control functions. Research and development in the fields of chemistry, physics, metallurgy, materials technology, nuclear safety, and mechanical engineering were also conducted at the site.

In 1989, many of the site's nuclear component production functions were suspended after a safety review temporarily shut down plutonium operations. Following an extensive review, which included considerable independent oversight, a few buildings were authorized by the Secretary of Energy to resume limited plutonium operations: to stabilize plutonium oxide and repackage plutonium for safe storage. In 1989, as a result of the environmental contamination caused by production activities at the site, Rocky Flats was placed on the Superfund National Priorities List. In January 1992, nuclear component production was terminated and the site's primary mission changed from nuclear weapons production to environmental cleanup and restoration.

CONTRACTORS: Kaiser-Hill Company (1995-present); EG&G Rocky Flats, Inc. (1989-1995); Rockwell International (1975-1989); Dow Chemical (1951-1975)

233 - Roger Iron Co.

State: Missouri **Location:** Joplin
Time Period: 1956
Facility Type: Atomic Weapons Employer

Facility Description: The Roger Iron Company conducted a test operation involving crushing of a dolomite c-liner for the AEC. The liner had trace amounts of uranium and magnesium flouride. The test involved four individuals, including two employees of National Lead of Ohio (Fernald). NLO also monitored the air during the time of the test.

234 - Sacandaga Facility**

State: New York **Location:** Glenville
Time Period: 1947-1953
Facility Type: Department of Energy

Facility Description: The Sacandaga Facility was operated by the General Electric Company Knolls Atomic Power Laboratory for the AEC from 1947 to 1953. AEC sponsored research at the facility involved physics studies and sodium

technology development in support of breeder reactor design. Work also involved the use of beryllium.

**Consistent with the Act, coverage is limited to activities not performed under the responsibility of the Naval Nuclear Propulsion Program.

235 - Salmon Nuclear Explosion Site

State: Mississippi **Location:** Hattiesburg
Time Period: 1964-1972
Facility Type: Department of Energy

Facility Description: The Salmon Test Site was the location for two nuclear and two methane-oxygen gas explosion tests conducted deep underground in the Tatum Salt Dome. The tests were part of a program designed to detect, identify, and locate underground nuclear explosions

Drilling for the "Salmon" event began in April 1963. The Salmon test shot was fired on October 22, 1964. Post-shot activities were completed by June 30, 1965.

After the Salmon post-shot activities were completed, the Sterling shot was detonated in the Salmon cavity on December 3, 1966. In March 1968, Sterling cavity reentry drilling, surveying, and coring was begun. The facilities were shut down and the site was placed on standby status on April 12, 1968.

In November 1968, the cavity was prepared for the non-nuclear experiment called "Diode Tube." The shot was fired on February 1, 1969; post-shot activities were completed and the operation ended in June 1969.

Another non-nuclear event, called "Humid Water" took place in 1970. The cavity was prepared in February 1970 and the shot was fired on April 19, 1970. The site was decommissioned on June 29, 1972.

236 - Sandia Laboratory, Salton Sea Base

State: California **Location:** Imperial County
Time Period: 1946-1961
Facility Type: Department of Energy

Facility Description: The Salton Sea Test Base was used for a variety of military training and weapons research, development, testing, and evaluation activities. The base

was used by numerous tenant and non-tenant military commands as well as by research divisions of government agencies and private companies working on government projects. The site was established in 1942 as an operational base for seaplanes during World War II. Later, the Atomic Energy Commission renovated and expanded the base for aerodynamic testing of weapons-delivery vehicles. From 1946 to 1961, Sandia National Laboratory operated a testing program at the site. The remoteness of the area was ideal for training and other operations. It is unclear from the documentation whether this testing work involved the use of radioactive materials.

The site (now closed) is being remediated by the Corps of Engineers under the auspices of the Department of the Navy.

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237 - Sandia National Laboratories

Also Known As:
State: New Mexico **Location:** Albuquerque
Time Period: 1949-present
Facility Type: Department of Energy

Facility Description: Sandia National Laboratory originated in the 1940s as the Z Division of Los Alamos, the engineering arm of the US nuclear weapons development program. In 1949, it was given the mission to design the non-nuclear components for nuclear weapons. Since 1953, areas have been used to test nuclear and non-nuclear weapons components. From 1946-1957, Sandia also housed a weapons assembly line and from 1963-1971, an onsite liquid waste disposal system for liquid radioactive discharges from the Sandia Experimental Reactor Facility.

CONTRACTORS: Lockheed Martin (1995-present); Martin Marietta (1993-1995); AT&T (1951-1993)

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238 - Sandia National Laboratories--Livermore

State: California **Location:** Livermore
Time Period: 1956-present
Facility Type: Department of Energy

Facility Description: Sandia National Laboratory-Livermore was established in 1956 to conduct research and development in the interest of national security. The principal emphasis was on development and engineering of the parts of nuclear weapons outside the warhead physics package.

The site was selected for its proximity to Lawrence Livermore National Laboratory to facilitate a close working relationship between the two laboratories.

239 - Savannah River Site

State: South Carolina **Location:** Aiken
Time Period: 1950-present
Facility Type: Department of Energy

Facility Description: From 1950 until the late 1980s, the Savannah River Site conducted multiple operations that played a vital role in the U.S. nuclear weapons complex. Of greatest importance were the production of plutonium and tritium. Many facilities were built at SRS to support these production efforts and to address their resulting environmental impacts. They include five nuclear reactors, two chemical separation plants (also known as canyons), a nuclear fuel and target fabrication facility, a heavy water plant, and waste management facilities. In addition, SRS is the location of the Savannah River Technology Center and the Savannah River Ecology Laboratory.

SRS remains a key Department of Energy facility with an important national security mission of maintaining the nation's nuclear weapons stockpile and ensuring future production capabilities.

CONTRACTORS: Westinghouse Savannah River Company (1989-present); E. I. Du Pont de Nemours and Company (1950-1989)

240 - Sciaky Brothers, Inc.

State: Illinois **Location:** Chicago
Time Period: 1953
Facility Type: Atomic Weapons Employer

Facility Description: In 1953, Argonne National Laboratory suggested that Sciaky Brothers be used to perform a stitch welding operation for a uranium cord, zirconium clad specimen EBR irradiation. The documentation does not indicate whether this work actually took place. The company may also have done electron beam melting or welding of uranium metal on an experimental basis.

241 - Seaway Industrial Park

Also Known As: Charles St. Plant
State: New York **Location:** Tonawanda
Time Period: AWE 1974; DOE 1989-1998 (remediation)
Facility Type: Atomic Weapons Employer Department of Energy

Facility Description: In 1974, the Ashland Oil Company constructed bermed areas on the Ashland #1 property to hold two petroleum tanks. Some of the soil removed during construction was disposed of in three areas of the Seaway Industrial Park landfill. Subsequent investigations determined that the soil from the Ashland site contained radioactive contaminants exceeding Department of Energy (DOE) guidelines. This soil came from an area used for disposal of radioactive residues from the nearby Linde Air Products site. This company processed uranium for the Atomic Energy Commission and the Manhattan Engineer District, predecessor agencies of the Department of the Energy (DOE).

242 - Seneca Army Depot

State: New York **Location:** Romulus
Time Period: early 1940s
Facility Type: Atomic Weapons Employer

Facility Description: The MED temporarily stored approximately 2000 drums of pitchblende ores, which contained uranium, at the Seneca Army depot.

243 - Separations Process Research Unit (at Knolls Lab.)**

State: New York **Location:** Schenectady
Time Period: 1950-1953;1996-present (remediation)
Facility Type: Department of Energy

Facility Description: In 1950, the Atomic Energy Commission (AEC) constructed the Separations Process Research Unit (SPRU) as a pilot plant for developing and testing two chemical processes to extract both uranium and plutonium from irradiated fuel. This facility was operated by the Knolls Atomic Power Laboratory. Research and development was completed at SPRU in 1953 and the facility was closed. The technology developed at SPRU was transferred to the Hanford site.

**Consistent with the Act, coverage is limited to activities not

performed under the responsibility of the Naval Nuclear Propulsion program.

244 - Seymour Specialty Wire

Also Known As: Reactive Metals Inc.
Also Known As: National Distillers and Chemical Co.
Also Known As: Bridgeport Brass Co.
State: Connecticut **Location:** Seymour
Time Period: AWE 1962-1964; DOE 1985-1994 (remediation)
Facility Type: Atomic Weapons Employer Department of Energy

Facility Description: From 1962 to 1964, the Bridgeport Brass Company performed contract work at the Seymour site for the Atomic Energy Commission (AEC). This work involved developing an extrusion process for natural uranium metal. After 1964, the work was consolidated at the Reactive Metals site in Ohio. Operation of the Seymour site was later taken over by employees and the facility eventually became the Seymour Specialty Wire Company.

245 - Shattuck Chemical

Also Known As: Dawn Mining Corp.
Also Known As: Denn Mining Corp
State: Colorado **Location:** Denver
Time Period: 1950s; 1963
Facility Type: Atomic Weapons Employer

Facility Description: Shattuck Chemical prepared uranium compounds and uranium oxide in the late 1950s. (This was probably done under a Source Materials License issued by the Atomic Energy Commission.) Shattuck also processed refined uranium and produced natural uranium oxides on a commercial basis for the private market, and in 1963, supplied a small quantity of uranium to the Rocky Flats plant.

246 - Shippingport Atomic Power Plant

Also Known As: Shippingport
State: Pennsylvania **Location:** Shippingport
Time Period: 1957-1982; 1983-1995 (remediation)
Facility Type: Department of Energy

Facility Description: Shippingport Atomic Power Station,

located in Shippingport, Pennsylvania, was one of the first large-scale nuclear power plants in the world. Built and operated by the Duquesne Light Company of Pittsburgh, it operated from 1957 to 1982.

247 - Shpack Landfill

Also Known As: Metal and Controls Nuclear Corp.
Also Known As: Texas Instruments
Also Known As: M & C Nuclear
State: Massachusetts **Location:** Norton
Time Period: 1960-1965; 1986-1998 (remediation)
Facility Type: Atomic Weapons Employer Department of Energy

Facility Description: The Shpack Landfill began operating as a private landfill in the early 1960s and received both industrial and domestic wastes. The landfill was closed in 1965 under court order. In 1978, a concerned citizen who had detected elevated radiation levels at the site contacted the Nuclear Regulatory Commission. The Commission investigated the site and confirmed the presence of radioactivity in excess of natural background levels for the area. Exactly when these contaminants were deposited at the site is not known. However, the Nuclear Regulatory Commission determined that the Texas Instruments plant (see Metals and Controls Corp.) of Attleboro had used the landfill to dispose of trash and other materials. The Nuclear Regulatory Commission concluded that the contaminants probably resulted from this waste stream.

248 - Simonds Saw and Steel Co.

Also Known As: Simonds Saw and Steel Div., Guteri Special Steel Corp.
Also Known As: Allegheny-Ludlum Steel Corp.
State: New York **Location:** Lockport
Time Period: 1948-1956
Facility Type: Atomic Weapons Employer

Facility Description: Simonds Saw and Steel rolled uranium billets into rods for the AEC as part of the multi-site process overseen by the New York Operations Office for the production of uranium metal for fabrication into slugs for fueling Hanford production reactors. Simonds also rolled thorium metal whose most likely use was irradiation in Hanford reactors for the weapons program. Simonds rolled between 25 million and 35 million pounds of uranium and between 30,000 to 40,000 pounds of thorium.

249 - South Albuquerque Works

Also Known As: American Car and Foundry
Also Known As: ACF Industries, Inc.
State: New Mexico **Location:** Albuquerque
Time Period: 1951-1967
Facility Type: Department of Energy

Facility Description: The AEC owned the South Albuquerque Works from 1951-1967 and used it to produce weapons compontents. It was opened in anticipation of the 1952 closing of the Buffalo Works. American Car and Foundry was part of the Buffalo operation and also operated the South Albuquerque Works for the AEC.

CONTRACTOR: American Car and Foundry, Inc. (1951-1967)

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250 - Southern Research Institute

State: Alabama **Location:** Birmingham
Time Period: 1955-1958; 1962; 1976
Facility Type: Atomic Weapons Employer

Facility Description: The Southern Research Institute was involved in several AEC projects. During the period from November 10, 1955 through June 1, 1958, it was licensed (License #C-3417) to receive source material from National Lead Company of Ohio (Fernald) for research on the properties of uranium-liquid metal fuel elements. The Institute performed hot tensile tests on uranium metal and was authorized to receive 300 pounds of normal uranium from NLO. Records also indicate that it handled test quantities of radioactive metals for NLO in 1976. The file also contains a proposal to NLO to test uranium workability at elevated temperature, but does not indicate if the work was done.

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251 - Speedring Systems, Inc.

Also Known As: Axsys Technologies
Also Known As: Speedring Systems Inc.
State: Michigan **Location:** Detroit
Time Period: 1968
Facility Type: Beryllium Vendor

Facility Description: In 1968, Speedring of Detroit

machined some beryllium parts which Brush Beryllium was under contract to supply to Y-12.

252 - Speedring, Inc.

Also Known As: Axsys Technologies
Also Known As: Speedring, Inc.
State: Alabama **Location:** Culman
Time Period: unknown
Facility Type: Beryllium Vendor

Facility Description: Brush Beryllium sublet some jobs for Dow/Rocky Flats to Speedring. Speedring's beryllium dust and sampling practices are documented in Battelle's Defense Metals Information Center publication on "Some Notes on Safe Handling Practices for Beryllium." Speedring was part of the U.S. commercial beryllium industry in 1961 and receiving beryllium at this time, but records indicate that this beryllium was for use under another Government contract, possible for the Department of Defense. There is another Speedring facility in Detroit, MI.

253 - Spencer Chemical Co. (Missouri)

State: Missouri **Location:** Kansas City
Time Period: 1958-1963
Facility Type: Atomic Weapons Employer

Facility Description: The Spencer Chemical Company processed unirradiated uranium scrap for the AEC, recovering enriched uranium from it for use in the weapons complex. In 1963, Kerr-McGee took over Spencer Chemicals' nuclear operations.

254 - Spencer Chemical Co., Jayhawks Works

State: Kansas **Location:** Pittsburg
Time Period: 1958-1963
Facility Type: Atomic Weapons Employer

Facility Description: The Spencer Chemical Company, Jayhawks Works, processed unirradiated uranium scrap for the AEC, recovering enriched uranium from it for use in the weapons complex. In 1963, Kerr-McGee took over Spencer Chemicals' nuclear operations.

255 - Sperry Products, Inc.

Also Known As: PCC Technical Industries
State: Connecticut **Location:** Danbury
Time Period: 1952-1953
Facility Type: Atomic Weapons Employer

Facility Description: In 1952 and 1953, Sperry developed processes for testing and examining uranium plates for the Sylvania Corp., a major AEC contractor.

256 - St. Louis Airport Storage Site (SLAPS)

Also Known As: Robertson Airport
Also Known As: Robertson Storage Area
State: Missouri **Location:** St. Louis
Time Period: AWE 1946-1966; DOE 1984-1998
Facility Type: Atomic Weapons Employer Department of Energy

Facility Description: The St. Louis Airport Site Vicinity Properties are associated with both the St. Louis Airport Site and the Latty Avenue Properties. The Manhattan Engineer District acquired the St. Louis Airport Site in 1946 and used it to store uranium-bearing residues from the St. Louis Downtown Site from 1946 to 1966, when Continental Mining and Milling Company of Chicago purchased the waste, removed it from the storage site near the airport, and placed it in storage at Latty Avenue under Atomic Energy Commission license.

257 - Standard Oil Development Co. of NJ

Also Known As: Bayway, Exxon
State: New Jersey **Location:** Linden
Time Period: 1942-1945
Facility Type: Atomic Weapons Employer

Facility Description: Standard Oil performed a variety of tasks during World War II. It was under contract to coordinate materials for work to be done by the Metallurgical Laboratories of the Manhattan Engineer District. It also conducted studies to develop uranium metal through chemical reduction process, and to develop and construct centrifuges for uranium separation.

The company continued to provide consulting and analytical services for the Atomic Energy Commission, but it is not clear if any radioactive materials were handled there after World War II.

258 - Stanford Linear Accelerator Center

State: California **Location:** Palo Alto
Time Period: 1962-present
Facility Type: Department of Energy

Facility Description: The Stanford Linear Accelerator Center (SLAC) is owned and operated by Stanford University under contract with the Department of Energy. The Stanford Linear Accelerator Center was established in 1962 as a research facility for high energy particle physics. The Center's four major experimental facilities are the Linear Accelerator, the Positron Electron Project Storage Ring, the Stanford Positron Electron Asymmetric Ring, and the Stanford Linear Accelerator Center Linear Collider.

CONTRACTOR: Stanford University (1962-present)

259 - Star Cutter Corp.

Also Known As: Hitachi Farmington Hills Technology Center, Inc.
State: Michigan **Location:** Farmington
Time Period: 1956
Facility Type: Atomic Weapons Employer

Facility Description: The Star Cutter Corporation manufactured machine tools. Records indicate that National Lead of Ohio (Fernald) conducted a one-time test of a Star Cutter drill to hollow uranium slugs.

260 - Staten Island Warehouse

Also Known As: Archer Daniels Midland Co.
State: New York **Location:** New York
Time Period: 1939-1942
Facility Type: Atomic Weapons Employer

Facility Description: This warehouse was used for uranium ore storage from the Belgian Congo during the period from 1939-1942. From this warehouse, the ore was transported to various Manhattan Engineer District sites for long-term storage and/or processing. The ore was the property of the African Metals Corporation and the MED contractor purchased only the U3O8 content of the ore while African Metals retained ownership of the radium and precious metals in the ore.

261 - Stauffer Metals, Inc.

Also Known As: Stauffer-Tenescal Co.
Also Known As: Tenescal Co.
State: California **Location:** Richmond
Time Period: 1961
Facility Type: Atomic Weapons Employer

Facility Description: Stauffer performed electron beam melting tests on uranium metal for National Lead of Ohio (Fernald). The company had performed similar tests for Hanford.

262 - Superior Steel Co.

Also Known As: Copper Weld Inc.
Also Known As: Lot and Block 102J210
State: Pennsylvania **Location:** Carnegie
Time Period: 1955-1957
Facility Type: Atomic Weapons Employer

Facility Description: Superior Steel Company may have rolled production quantities of uranium metal for the National Lead of Ohio (Fernald).

263 - Sutton, Steele and Steele Co.

State: Texas **Location:** Dallas
Time Period: 1951; 1959
Facility Type: Atomic Weapons Employer

Facility Description: In 1951, AEC and AEC contractor personnel conducted tests at Sutton, Steele, and Steele, Inc. which were aimed at devising means of recovering uranium from low grade wastes and residues. The tests were to determine the feasibility of separating fused dolomite from magnesium floride slag and uranium. In 1959, National Lead of Ohio (Fernald) personnel evaluated Sutton, Steele, and Steele's dry tabling equipment for the separation of normal uranium shot.

264 - Swenson Evaporator Co.

State: Illinois **Location:** Harvey
Time Period: 1951
Facility Type: Atomic Weapons Employer

Facility Description: Swenson Evaporator was scheduled to perform a raffinate spray drying test for National Lead Company of Ohio (NLO) on March 20, 1951. This test would have involved some radioactive residue. The drums containing the raffinate were shipped to Swenson by Mallinckrodt, but it is believed that they were not opened and the test not performed.

265 - Sylvania Corning Nuclear Corp. - Bayside Laboratories

Also Known As: Sylvania Electric Products, Inc
Also Known As: Metallurgical Laboratory
Also Known As: Sylvania Electric Company, Atomic Energy Division
Also Known As: Sylvania Bayside Laboratories
Also Known As: Sylcor
State: New York **Location:** Bayside
Time Period: 1947-1962
Facility Type: Atomic Weapons Employer Beryllium Vendor

Facility Description: The Metallurgical Laboratory of the Sylvania Electric Company investigated uranium and thorium powder metallurgy. It also produced powdered metal slugs, developed bonding techniques, and plated uranium slugs with nickel. The work with slugs included the conversion of uranium metal to uranium hydride using hydrogen. A February 1948 AEC Monthly Summary of Activities indicates that the Lab's "initial program will involve determining the physical properties and the health hazards of beryllium and uranium powders and the applications of powder metallurgy to these metals and their alloys." In 1948, the work required 315 pounds of raw beryllium metal. Beryllium was handled first in the regular metallurgical building and then, after the objections of the AEC medical division, in a special AEC metallurgical development laboratory.

266 - Sylvania Corning Nuclear Corp. - Hicksville Plant

Also Known As: General Telephone and Elctronics Laboratories (GTE)
Also Known As: Sylcor
State: New York **Location:** Hicksville
Time Period: 1952-1966
Facility Type: Atomic Weapons Employer

Facility Description: Under Atomic Energy Commission (AEC) contracts, the facility was used for research and development with radioactive materials, principally uranium and thorium. It was also licensed by the AEC to fabricate reactor fuel elements for the AEC, for Sylvania use, for sale, and for research purposes.

267 - Tech-Art, Inc.

State: Ohio **Location:** Milford
Time Period: 1952
Facility Type: Atomic Weapons Employer

Facility Description: In 1952, National Lead Company of Ohio (Fernald) used Tech-Art to grind inserts as part of a study of Firth Sterling HF carbide profile inserts in conjuction with the machining development program. Additional documentation shows that Tech-Art possessed a subcontract with NLO for "[m]achine shop operations on Government owned materials at prescribed hourly rates of pay."

268 - Tennessee Valley Authority

Also Known As: Uranium Recovery Pilot Plant and Laboratory
State: Alabama **Location:** Muscle Shoals
Time Period: 1951-1955
Facility Type: Atomic Weapons Employer

Facility Description: At its National Fertilizer Development Center, the TVA performed research and development on uranium recovery under formal agreement with the AEC. The work involved the extraction of uranium during the production of fertilizer from leached zone phosphate ore. A laboratory and pilot plant were operated at the fertilizer plant, but little uranium (about 2.5 kilograms of uranium concentrate) was produced.

269 - Texas City Chemicals, Inc.

Also Known As: American Oil Co.
Also Known As: Borden, Inc.
Also Known As: Smith-Douglass
Also Known As: Amoco Chemical Company
State: Texas **Location:** Texas City
Time Period: 1952-1956
Facility Type: Atomic Weapons Employer

Facility Description: Texas City Chemicals produced uranium by recovery of U3O8 from a phosphate fertilizer production plant. The AEC contracted with Texas City Chemicals for the recovery of uranium which was ultimately used in weapons production.

270 - Thomas Jefferson National Accelerator Facility

State: Virginia **Location:** Newport News
Time Period: 1994-present
Facility Type: Department of Energy

Facility Description: The Thomas Jefferson National Accelerator Facility is a basic research laboratory built to probe the nucleus of the atom to learn more about the quark structure of matter.

CONTRACTOR: Southeastern Universities Research Association, Inc. (1994-present)

271 - Titanium Alloys Manufacturing

Also Known As: Humphreys Gold Co.
Also Known As: Titanium Alloys Mfg Co, Div. Of National Lead of Ohio
Also Known As: Titanium Alloy Metals
Also Known As: Titanium Pigment Co.
State: New York **Location:** Niagara Falls
Time Period: 1950-1956
Facility Type: Atomic Weapons Employer

Facility Description: In the early 1950s, Titanium Alloys Manufacturing was under contract to the AEC to provide zirconium tetrachloride. In 1955, TAM was issued an AEC source material license to do work related to the conversion of thorium scrap to anhydrous tetrachloride. Correspondence from Oak Ridge indicates that it was not interested the company's thorium work. In 1956, this division reduced ores and other uranium compounds by arc melting in an induction furnace.

272 - Titus Metals

Also Known As: Titus, Inc.
State: Iowa **Location:** Waterloo
Time Period: 1956

Facility Type: Atomic Weapons Employer

Facility Description: Titus Metals performed the extrusion of uranium oxide billets into fuel plates for the Argonaut reactor at Argonne National Laboratory on June 29, 1956.

273 - Tocco Induction Heating Div.

Also Known As: Ohio Crankshaft Co.
Also Known As: Tocco Heat Testing
Also Known As: Park Ohio Industries
State: Ohio **Location:** Cleveland
Time Period: 1968-1969
Facility Type: Atomic Weapons Employer

Facility Description: Tocco had a contract with National Lead of Ohio (Fernald) to develop induction heating coil equipment for heating uranium fuel cores. Tocco performed operational tests of these units at its Ohio facility, which took place during 1968-1969. The company received 2000 pounds of natural uranium machined fuel cores and 5600 pounds of U-235 machined fuel cores from NLO for testing.

274 - Torrington Co.

State: Connecticut **Location:** Torrington
Time Period: 1951-1953
Facility Type: Atomic Weapons Employer

Facility Description: The Torrington Company performed small-scale swaging experiments on uranium rods in the early 1950s. Torrington conducted this work for two companies: the Bridgeport Brass Company and American Machine and Foundry.

275 - Trinity Nuclear Explosion Site

State: New Mexico **Location:** White Sands Missile Range

Time Period: 1945
Facility Type: Department of Energy

Facility Description: The Trinity test was the first nuclear weapons test, which took place in July 1945 at the Alamogordo Bombing and Gunnery Range. It was designed to determine whether the implosion method could be used to detonate a nuclear weapon composed of plutonium. The Trinity test involved the open air detonation of a nuclear

device placed on a metal tower.

276 - Trudeau Foundation

State: New York **Location:** Saranac Lake
Time Period: 1950-1957
Facility Type: Beryllium Vendor

Facility Description: The AEC Division of Biology and Medicine supported beryllium research studies at the Trudeau Foundation.

277 - Tube Reducing Co.

State: New Jersey **Location:** Wallington
Time Period: 1952; 1957
Facility Type: Atomic Weapons Employer

Facility Description: Tube Reducing Co. conducted tests for National Lead of Ohio (Fernald) on shaping and sizing uranium rods. In January 1952, two uranium rods were processed. Another test was conducted in 1957.

The firm is also mentioned in World War II-era reports as a possible location for uranium machining, but there are no indications that any such work was done at the facility during that time period.

278 - Tyson Valley Powder Farm

State: Missouri **Location:** St. Louis
Time Period: 1940-1947
Facility Type: Atomic Weapons Employer

Facility Description: The Tyson Valley Powder Farm was a storage site for radioactive materials in the late 1940s. Records show, for example, that at the end of 1946, 206,110 pounds of uranium metal were stored at this location for the Manhattan Engineer District.

279 - U.S. Pipe and Foundry

State: New Jersey **Location:** Burlington
Time Period: 1943
Facility Type: Beryllium Vendor

Facility Description: A small amount of beryllium mesh (15

pounds) was sent to U.S. Pipe and Foundry by the MED. Some work was done, but it is unclear whether a satisfactory technique was ever developed beyond this initial attempt to manufacture beryllium tubes.

280 - U.S. Steel Co., National Tube Division

State: Pennsylvania **Location:** McKeesport
Time Period: 1959-1960
Facility Type: Atomic Weapons Employer

Facility Description: Tests at the Christy Park Works, National Tube Division of the U. S. Steel Corporation, conducted in 1959 and 1960, demonstrated that rotary piercing of uranium was possible. The tests were conducted for National Lead of Ohio (Fernald).

281 - United Lead Co.

State: New Jersey **Location:** Middlesex
Time Period: 1950-1967
Facility Type: Atomic Weapons Employer Beryllium Vendor

Facility Description: From 1950 to 1955, United Lead, a subsidiary of National Lead Company, was the AEC's operating contractor for the Middlesex Sampling Plant. The Middlesex Sampling Plant sampled, assayed, stored, and shipped uranium, thorium, and beryllium ores. The plant discontinued uranium and beryllium assaying and sampling activities in 1955. Until 1967, the site was used as a thorium storage and sampling site.

282 - United Nuclear Corp.

Also Known As: Mallinckrodt Chemical Works, Chemicals Div.
State: Missouri **Location:** Hematite
Time Period: 1958-1969
Facility Type: Atomic Weapons Employer

Facility Description: The United Nuclear Corporation in Hematite, Missouri, processed unirradiated uranium scrap for the AEC, recovering enriched uranium from it for use in the nuclear weapons complex. Mallinckrodt Chemical Works owned the Hematite plant until 1961.

283 - University of California

Also Known As: California Resources & Development
State: California **Location:** Berkeley
Time Period: AWE 1940s; DOE 1981-1982 (remediation)
Facility Type: Atomic Weapons Employer Department of Energy

Facility Description: Gilman Hall, located on the University of California-Berkeley campus, was the site of nuclear research involving plutonium and uranium. These activities were conducted during the 1940s, first in support of the OSRD and then for the Manhattan Engineer District and Atomic Energy Commission.

284 - University of Chicago

Also Known As: Eckhardt Hall (+ West Stands, New Chem. Lab and Annex, Ryerson Physical Lab, Kent Chem. Lab)
State: Illinois **Location:** Chicago
Time Period: AWE:1942-1952; DOE:1984-1987 (remediation)
Facility Type: Atomic Weapons Employer Department of Energy

Facility Description: The Univeristy of Chicago Metallurgical Laboratory was involved in early uranium metallurgical work in 1942-1943. The first self-sustaining nuclear chain reaction was achieved aat the university in a "pile" called the Chicago Pile 1, built by Enrico Fermi and his Met Lab colleagues.

The University of Chicago continued to perform research and metallurgical work for Atomic Energy Commission until the early 1950s. The University of Chicago site includes seven buildings that were associated with Manhattan Engineer District/Atomic Energy Commission nuclear research and development between 1942 and 1952. These include the new Chemistry Laboratory and Annex, West Stands, Ryerson Physical Laboratory, Eckhart Hall, Kent Chemical Laboratory, Jones Chemical Laboratory, and Ricketts Laboratory. Cleanup of the sites where this work was performed was completed in 1987.

285 - University of Denver Research Institute

State: Colorado **Location:** Denver
Time Period: 1963-1965
Facility Type: Atomic Weapons Employer Beryllium Vendor

Facility Description: The University of Denver Research Institute is listed as a processor of radioactive materials for National Lead of Ohio (Fernald). It appears that the University of Denver handled test quantities of radioactive metal in February 1965.

In 1963, a University of Denver Research Institute researcher (F. Perkins) held an AEC contract for work on intermediate-temperature oxidation of beryllides.

286 - University of Florida

Also Known As: J. Hillis Miller Health Center
Also Known As: College of Medicine, Dept. of Radiology
State: Florida **Location:** Gainesville
Time Period: 1950s-1960s
Facility Type: Atomic Weapons Employer

Facility Description: Documents indicate that the University handled test quantities of radioactive material for National Lead of Ohio (Fernald) during the 1950s and 1960s. At present, no details about this work have been located.

The University also obtained licenses to handle radioactive material from the Nuclear Regulatory Commission. Work done under these NRC licenses was not related to nuclear weapons production.

287 - University of Michigan

State: Michigan **Location:** Ann Arbor
Time Period: 1944
Facility Type: Atomic Weapons Employer

Facility Description: The University of Michigan developed radar fuses and conducted ordnance research to assist Los Alamos in atomic bomb research and production.

Records indicate that small quantities of uranium metal were handled at the University of Michigan under AEC contract. The contract expired April 10th, 1944. It is unknown whether or not similar work was performed before or after this date.

288 - University of North Carolina

State: North Carolina **Location:** Chapel Hill
Time Period: 1949-1954

Facility Type: Beryllium Vendor

Facility Description: The AEC Division of Biology and Medicine supported beryllium research at the University of North Carolina.

289 - University of Rochester Medical Laboratory

State: New York **Location:** Rochester
Time Period: 1942-1980s
Facility Type: Atomic Weapons Employer

Facility Description: Although much of the early theoretical and experimental work that led to development of the first nuclear weapon was accomplished outside the United States, American researchers made a number of fundamental contributions as well. Prior to 1942, the University of Rochester was one of the institutions that contributed to early nuclear physics research in the United States. The university was responsible for more than a hundred projects in chemistry, physics, biology, medicine and psychology. During the Manhattan Project, it had major responsibility for the medical aspects of the bomb program. After the war, Rochester received an AEC contract to operate the Atomic Energy Project (AEP), which focused on the biomedical aspects of nuclear energy.

290 - University of Virginia

State: Virginia **Location:** Charlottesville
Time Period: early 1940s; 1960s
Facility Type: Atomic Weapons Employer

Facility Description: The University of Virginia played an integral role in developing the process to use uranium in the development in nuclear weapons. The Naval Research Laboratory asked Dr. Jesse Beams, of UVA, about the possibility to using isotope separation by centrifuge for the enrichment process of uranium. He was able to successfully enrich uranium by the use of his high-speed centrifuge.

Later, the University of Virginia's Nuclear Reactor Facility, operated by the Department of Mechanical, Aerospace and Nuclear Engineering, housed the UVAR, a light-water-cooled and moderated research pool-type reactor which began operation in 1960 and ceased operations in 1998.

291 - Utica St. Warehouse

Also Known As: Linde Air Products
State: New York **Location:** Buffalo
Time Period: 1945
Facility Type: Atomic Weapons Employer

Facility Description: Residues from Linde Air operations were stored and rebarreled at this location.

292 - Ventron Corporation

Also Known As: Metal Hydrides Corp.
Also Known As: Ventron Div., Morton Thiokol, Inc.
State: Massachusetts **Location:** Beverly
Time Period: AWE 1942-1948; DOE 1986-1998 (remediation)
Facility Type: Atomic Weapons Employer Department of Energy

Facility Description: From 1942 to 1948, Metal Hydrides Corp. was under contract to the Manhattan Engineer District and the Atomic Energy Commission to convert uranium oxide to uranium metal powder. This work, as well as later operations to recover uranium from scrap and turnings from a fuel fabrication plant at Hanford, was conducted at a foundry at the site. During this period, Metal Hydrides was the AEC's primary uranium scrap recovery contractor.

The plant is currently owed by the Ventron Division of Morton International.

293 - Virginia-Carolina Chemical Corp

Also Known As: Conser Dept. of Phillips Brothers Div.
Also Known As: Englehard Minerals and Chemical Corp
Also Known As: Socony Mobile Oil Co.
State: Florida **Location:** Nichols
Time Period: 1952-1957
Facility Type: Atomic Weapons Employer

Facility Description: The Virginia-Carolina Chemical Corporation produced uranium as a byproduct of the recovery of phosphate chemicals and fertilizers. The AEC contracted with the Virginia-Carolina Chemical Corp. for the recovery of the uranium, which was ultimately used in weapons production.

294 - Vitro Corp. of America (New Jersey)

Also Known As: Heavy Minerals Co.
Also Known As: Vitro Chemical Co.
State: New Jersey **Location:** West Orange
Time Period: 1951-early 1960s
Facility Type: Atomic Weapons Employer

Facility Description: In December 1951, Vitro was asked to submit a proposal for research on thorium fluoride production, scrap recovery and waste recovery to involve 14 chemists and analysts. Though it is not certain whether this work was undertaken, by the late 1950s and early 1960s, Vitro conducted work under AEC contract converting low-enrichment uranium dioxide to uranium carbide spheres. The uranium dioxide was shipped from Rockwell International (then known as the Atomics International Division of North American Aviation, Inc.) to Vitro for conversion into uranium carbide and was then shipped back to Rockwell. Around 1958, Vitro also conducted work under contract to the AEC Oak Ridge Operations Office for the separation of fission products.

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295 - Vitro Corporation of America (Tennessee)

Also Known As: Chattanooga site now owned by W.R. Grace
Also Known As: Vitro Chemical is subsidiary of Vitro Corp.
Also Known As: Heavy Minerals Co.
State: Tennessee **Location:** Chattanooga
Time Period: AWE 1957-uncertain; BE uncertain
Facility Type: Atomic Weapons Employer Beryllium Vendor

Facility Description: Records indicate that "Vitro Corporation" of Chattanoga, TN performed some beryllium work for Y-12. A 1962 document also mentions that the AEC met with members of the beryllium industry, including representatives from "Vitro Chemical" (no address), but does not mention whether any contracts were involved in these discussions.

The original owner of this site was Heavy Metals Inc. and possessed an AEC license to process uranium and thorium products beginning as early as 1957. Documentation indicates that the company provided price quotes to the AEC for thorium products as early as 1954, but there is no indication that it received a contract for that work. Vitro Chemical of Chattanooga, TN, a subsidiary of Vitro Corporation, took over the site at the end of 1959 and was

under contract to the AEC to produce thorium metal, thorium fluoride and thorium oxide. This site is now owned by W.R. Grace.

296 - Vitro Manufacturing (Canonsburg)

Also Known As: Vitro Rare Metals Co.
State: Pennsylvania **Location:** Canonsburg
Time Period: 1948-1967
Facility Type: Atomic Weapons Employer

Facility Description: Vitro Canonsburg was a major uranium milling facility. Starting in 1948, Vitro was under contract to recover uranium from scrap. In the period from 1954-1956, Vitro had a contract to process production quantites of radioactive material (UF4) for National Lead of Ohio (Fernald). Vitro also received uranium scrap from the Tyson Valley Powder Farm sometime in 1949. From 1957-1967, the site was used only for storage.

The Canonsburg site is one of 24 former uranium mill sites designated for Department of Energy remediation by the Uranium Mill Tailings Radiation Control Act (UMTRA).

297 - Vulcan Tool Co.

State: Ohio **Location:** Dayton
Time Period: 1959
Facility Type: Atomic Weapons Employer

Facility Description: At the request of National Lead Company of Ohio (Fernald), Vulcan Tool Company conducted experiments involving the cutting of normal uranium slugs and tubes on a Brehm cutter in October 1959.

298 - W.E. Pratt Manufacturing Co.

Also Known As: William E. Pratt Manufacturing Co.
Also Known As: Klassing Handbrake
Also Known As: Altrachem, Inc.
Also Known As: subsidiary of Joslyn Mfg and Supply
State: Illinois **Location:** Joliet
Time Period: 1943-1946
Facility Type: Atomic Weapons Employer

Facility Description: The W.E. Pratt Manufacturing Company performed metal fabrication tasks (machining and

grinding) for the University of Chicago Metallurgical Laboratory beginning in the spring of 1943. The purpose of the machining done by Pratt was to speed up delivery of pieces for the experimental pile and to learn all that could be learned about handing uranium metal in turret lathes and automatic screw machines. In 1944, Pratt was subcontracted by the University of Chicago to finish “short metal rods” by centerless grinding. This work continued until June 30, 1946. The Manhattan Engineer District History indicates that DuPont placed an order with Pratt to turn and grind unbonded Hanford slugs.

299 - W.R. Grace (Tennessee)

Also Known As: Nuclear Fuels Servcies
Also Known As: Davison Chemical
State: Tennessee **Location:** Erwin
Time Period: 1958-1969
Facility Type: Atomic Weapons Employer

Facility Description: The Davison Chemical Division of W.R. Grace Co. (later Nuclear Fuel Services) processed unirradiated uranium scrap for the AEC, recovering enriched uranium from it for use in the nuclear weapons complex. Correspondence from 1963 also indicates that the company also worked with thorium.

300 - W.R. Grace and Company (Maryland)

Also Known As: Davison Chemical Corp.
Also Known As: Agri-Chemicals Div.
State: Maryland **Location:** Curtis Bay
Time Period: 1955-1958
Facility Type: Atomic Weapons Employer

Facility Description: Processing of radioactive materials at W.R. Grace began in July 1955 when Rare Earths, Inc. (W.R. Grace's predecessor) entered into a contract with the Atomic Energy Commission to extract thorium and rare earths from naturally-occurring monazite sands. In 1956, the Atomic Energy Commission contract and Rare Earths' license to possess, transfer, and use radioactive thorium were transferred to W.R. Grace & Company. The facility where thorium processing took place (Building 23) operated until late spring of 1957, when W.R. Grace and the Atomic Energy Commission agreed to terminate the contract, effective January 31, 1958.

301 - W.R. Grace Co., Agricultural Chemical Div. (Florida)

State: Florida **Location:** Ridgewood
Time Period: 1954
Facility Type: Atomic Weapons Employer

Facility Description: For one month in 1954, W.R. Grace performed the pilot plant work on solvent extraction for Armour Fertilizer, which used the solvent process to extract uranium from phosphates.

302 - Wah Chang

Also Known As: Teledyne Wah Chang
State: Oregon **Location:** Albany
Time Period: 1956-1959; 1971-1972
Facility Type: Atomic Weapons Employer

Facility Description: Wah Chang operations began in 1956 when, under contract with the U.S. Atomic Energy Commission, Wah Chang Corporation reopened the U.S. Bureau of Mines Zirconium Metal Sponge Plant. Construction of new facilities, at the location of the existing plant, began in 1957. These facilities were established primarily for the production of zirconium and hafnium sponge; however, tantalum and niobium pilot facilities were also included. Melting and fabrication operations were added in 1959. Wah Chang may also have been involved in thorium work. In 1971-1972 a subcontract existed with Union Carbide Corporation (Y-12 plant) for melting uranium-bearing material.

303 - Wash-Rite

State: Indiana **Location:** Indianapolis
Time Period: 1953-1954
Facility Type: Atomic Weapons Employer

Facility Description: During 1953-1954, National Lead Company of Ohio (Fernald) used Wash-Rite to decontaminate work gloves by washing or cleaning. Uranium was found in lint and solvent after cleaning.

304 - Waste Isolation Pilot Plant

Also Known As: WIPP
State: New Mexico **Location:** Carlsbad

Time Period: 1999-present
Facility Type: Department of Energy

Facility Description: The Waste Isolation Pilot Plant (WIPP) was designed for the disposal of transuranic radioactive waste resulting from the research and production of nuclear weapons. It is the world's first underground repository licensed to safely and permanently dispose of transuranic radioactive waste left from the research and production of nuclear weapons. WIPP began operations on March 26, 1999.

CONTRACTOR: Westinghouse WIPP Company (1999-present)

305 - Watertown Arsenal

Also Known As: American Cyanimid Co.
State: Massachusetts **Location:** Watertown
Time Period: 1946-1952; 1953-1957
Facility Type: Atomic Weapons Employer

Facility Description: The Watertown Arsenal, Watertown, MA continued the work begun in 1946 by the Massachusetts Institute of Technology on methods for extraction of uranium and thorium from ore and to prepare metal grade uranium tetrafluoride. The work was transferred later that year to Watertown Arsenal, Watertown, MA. American Cyanamid Company succeeded MIT in operating the project at Watertown Arsenal from 1951 until October 1952, when it was transferred to the Winchester Facility. The Watertown Arsenal was also involved in work requested by National Lead of Ohio between 1953 and 1957 which involved reducing hollow uranium tubes by the Hamiroll Swaging Process.

Contract #AT(30-1)-956 was associated with the work performed at the Watertown Arsenal on behalf of the AEC.

306 - Weldon Spring Plant

Also Known As: Mallinckrodt
Also Known As: Weldon Spring Chemical Co.
Also Known As: Weldon Spring Ordnance Works
Also Known As: WSSRAP
Also Known As: WSS
State: Missouri **Location:** Weldon Spring
Time Period: 1957-1967; 1985-present (remediation)
Facility Type: Department of Energy

Facility Description: In the early 1950s, the Atomic Energy Commission built two new feed materials plants, the Weldon Spring Plant, operated by the Mallinckrodt Chemical Company, and the Feed Materials Production Center in Fernald, Ohio, to expand and centralize uranium refining activities in support of the national defense program. These facilities were successors to Mallinckrodt's Destrehan St. Plant. Both of these facilities also supplied fuel for the expanded number of production reactors. Weldon Spring shut down in 1966 after losing a direct competition with the Ohio facility. The Weldon Spring Plant was subsequently deactivated and no activities were carried out at the site until remediation began in 1985.

CONTRACTOR: Mallinckrodt Chemical Company (1957-1967)

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307 - West Valley Demonstration Project

Also Known As: Nuclear Fuels Services, West Valley
Also Known As: Western New York Fuel Services Center
State: New York **Location:** West Valley
Time Period: AWE 1966-1972; DOE 1980-present
Facility Type: Atomic Weapons Employer Department of Energy

Facility Description: From 1966 to 1972, Nuclear Fuel Services, Inc., under contract to the State of New York, operated a commercial nuclear fuel reprocessing plant at the Western New York Nuclear Services Center. The plant reprocessed uranium and plutonium from spent nuclear fuel; sixty percent of this fuel was generated at defense facilities. Spent nuclear fuel reprocessing generated approximately 600,000 gallons of liquid high-level radioactive waste; this waste was stored onsite in underground tanks.

In 1980, the United States Congress passed the West Valley Demonstration Project Act (Public Law 96-368), which authorized the Department of Energy (DOE) to conduct a technology demonstration project to solidify the liquid high-level waste at the Western New York Nuclear Services Center. Under this act, DOE is also responsible for developing containers suitable for the permanent disposal of the solidified high-level waste at an appropriate Federal repository; transporting the containers to this repository; disposing of low level waste and transuranic waste generated by high level waste solidification; and decontaminating and decommissioning facilities used for the

solidification. DOE is also responsible for dispositioning the spent nuclear fuel stored at the site.

In 1982, DOE selected vitrification as the treatment process for high level waste. This process solidifies and stabilizes nuclear waste by mixing it with molten glass. Pretreatment of the high-level waste began in 1988 and was successfully completed in 1995. DOE expects to complete the West Valley Demonstration Project by 2005.

CONTRACTOR: West Valley Nuclear Services, Inc. (1982-present)

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308 - Westinghouse Atomic Power Development Plant

Also Known As: East Pittsburgh Plant
State: Pennsylvania **Location:** East Pittsburgh
Time Period: 1941-1944
Facility Type: Atomic Weapons Employer

Facility Description: Westinghouse prepared uranium metal for Enrico Fermi's Staff Field experiment and conducted development and pilot-scale production of uranium oxide fuel elements.

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309 - Westinghouse Electric Corp. (New Jersey)

Also Known As: North American Phillips Lighting
State: New Jersey **Location:** Bloomfield
Time Period: 1941 -1943
Facility Type: Atomic Weapons Employer

Facility Description: Westinghouse Electric, located in Bloomfield, NJ, was one of the large commercial contributors to Manhattan Project research. Specific tasks related to uranium metal production and enrichment. Because developing the technology to produce pure uranium metal became a priority for the Manhattan Project, universities, and private companies with experience in related chemical processes participated in the task. From 1942-1943, Westinghouse used a photochemical process for metallic uranium and supplied metallic uranium for the first self-sustaining chain reaction in Chicago. In addition to contributing to uranium metal production, Westinghouse Electric participated in activities related to uranium enrichment.

Westinghouse also worked with thorium, but it is unclear if

that work took place in Bloomfield or at another Westinghouse location.

310 - Winchester Engineering and Analytical Center

Also Known As: U.S. Public Health Service; N.E. Radiological Laboratory
Also Known As: Northeastern Radiological Health Laboratory
Also Known As: National Lead Co.
Also Known As:
Also Known As:
State: Massachusetts **Location:** Winchester
Time Period: 1952-1961
Facility Type: Department of Energy

Facility Description: The Winchester Engineering and Analytical Center, built in 1952 under sponsorship of the AEC, was used to continue development of methods for extraction of uranium and thorium form ore and to prepare metal grade uranium tetrafluoride. Massachusetts Institute of Technology (MIT) began the work in 1946 at Cambridge, MA and continued the work after it was transferred later that year to Watertown Arsenal, Watertown, MA. American Cyanamid Company succeeded MIT in operating the project at Watertown Arsenal from 1951 until October 1952, when it was transferred to the Winchester Facility. In 1954, National Lead Company, Inc. took over operations under AEC contract AT(49-6)-924. Beginning in 1959, facility use shifted to laboratory testing of environmental analysis methods pertaining to uranium waste. In 1961, the work was discontinued, and the facility was transferred to the Department of Health, Education and Welfare (HEW) for use as a low-level environmental radiation surveillance laboratory and for analysis of radiopharmaceuticals.

CONTRACTORS: National Lead Company (1954-1961); American Cyanmid (1952-1954)

311 - Woburn Landfill

Also Known As: Winchester Engineering Vicinity Property
Also Known As: Woburn Dumpsite
State: Massachusetts **Location:** Woburn
Time Period: 1955-1960
Facility Type: Atomic Weapons Employer

Facility Description: Fifty 55-gallon drums of low grade uranium ore were buried at the Woburn site. The material came from the AEC Raw Materials Development Laboratory (see the Winchester Engineering and Analytical Center) operated by the National Lead Company under contract from 1955-1960.

312 - Wolff-Alport Chemical Corp

State: New York **Location:** Brooklyn
Time Period: 1949-1950
Facility Type: Atomic Weapons Employer

Facility Description: Wolff-Alport Chemical Corporation was under contract with the AEC (#AT-30-1-Gen-287) for the procurement of thorium containing sludge for stockpiling by the AEC. A March 1949 document mentions, "current contract expires June 30, 1949 and will probably be extended for another year. Cost is approximately $50,000 annually." This same document shows that almost 30,000 pounds of thorium oxalate sludge was provided the AEC that year.

313 - Wolverine Tube Division

Also Known As: Div. Of Calumet Hecia Consolidated Copper Co.
Also Known As: Hermes Automotive
Also Known As: Mamif Corp.
State: Michigan **Location:** Detroit
Time Period: 1943-uncertain
Facility Type: Atomic Weapons Employer Beryllium Vendor

Facility Description: In 1943, the University of Chicago subcontracted to Wolverine Tube of Detroit, Michigan, for help in extrusion of metals that were needed as part of the Manhattan Project. Wolverine Tube performed research on the fabrication of aluminum slugs and the process of aluminum canning and also experimented with thorium and beryllium. This contract ended in 1946. Wolverine Tube receieved other AEC contracts because of its extrusion expertise.

314 - Wyckoff Drawn Steel Co.

Also Known As: Wyckoff Steel Co.
Also Known As: Ferranti Steel & Aluminum Co.

State: Illinois **Location:** Chicago
Time Period: 1943
Facility Type: Atomic Weapons Employer

Facility Description: In 1943, the Metallurgical Laboratory conducted experiments of centerless grinding equipment on uranium. Wycoff Drawn Steel surfaced two tubes and one rod, but their process was deemed to be too expensive and too slow to be used in production.

315 - Wykoff Steel Co.

State: New Jersey **Location:** Newark
Time Period: 1950
Facility Type: Atomic Weapons Employer

Facility Description: Wykoff Steel conducted tests of methods to straighten and finish uranium rods on September 6, 1950.

316 - Wyman Gordon Inc.

State: Massachusetts **Location:** Grayton, North Grafton
Time Period: 1959-1965
Facility Type: Beryllium Vendor

Facility Description: Wyman-Gordon supplied beryllium powder forgings and beryllium blanks to the Rocky Flats plant and beryllium metal and parts to the Y-12 plant.

317 - Y-12 Plant

State: Tennessee **Location:** Oak Ridge
Time Period: 1942-present
Facility Type: Department of Energy

Facility Description: Built in a rural section of East Tennessee, the Y-12 National Security Complex, previously known as the Oak Ridge Y-12 Plant, was part of the Manhattan Project. Its job was to process uranium for the first atomic bomb. Construction of Y-12 started in February 1943; enriched uranium production started in November of the same year. Construction, however, was not entirely finished until 1945.The first site mission was the separation of uranium-235 from natural uranium by the electromagnetic separation process. The magnetic separators were taken out of commission at the end of 1946 when gaseous diffusion became the accepted process for enriching uranium.

Since World War II, the number of buildings at Y-12 has doubled. Its missions have included uranium enrichment, lithium enrichment, isotope separation and component fabircation. For more than 50 years, Y-12 has been one of the DOE weapons complex's premier manufacturing facilities. Every weapon in the stockpile has some components manufactured at the Y-12 National Security Complex.

CONTRACTORS: Bechtel Jacobs (1998-present); Lockheed Martin Energy Systems (1994-1998); Martin Marietta Energy Systems (1984-1994); Union Carbide & Carbon Corp. (1947-1984); Tennessee Eastman Corp. (TEC) (1943-1947)

318 - Yucca Mountain Site Characterization Project

State: Nevada **Location:** Yucca Mountain
Time Period: 1987-present
Facility Type: Department of Energy

Facility Description: The purpose of the Yucca Mountain Site Characterization Project is to determine if Yucca Mountain, Nevada, is a suitable site for a spent nuclear fuel and high-level radioactive waste respository. The project involves extensive scientific study on Yucca Mountain's geology, hydrology, biology, and climate. Radioactive materials have not been used in the study. No radioactive materials have been shipped to Yucca Mountain for storage.